Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Parts 1, 2, 15, 25, 73, and 90 of the Commission's Rules to Make Non-Substantive Editorial Revisions to the Table of Frequency Allocations and to Various Other Rules	))))	

ORDER

Adopted: July 20, 2010 **Released: July 21, 2010**

By the Chief, Office of Engineering and Technology and the Managing Director:

TABLE OF CONTENTS

Heading Paragraph #

I. INTRODUCTION

1. By this action, we amend Parts 1, 2, 15, 25, 73, and 90 of the Commission's Rules in order to make non-substantive, editorial revisions to the Table of Frequency Allocations (Allocation Table),[1] related Rule sections in Part 2,[2] and certain service rules in the above-noted Rule Parts.[3] This action is not intended to modify or otherwise change any licensee's underlying legal rights and/or responsibilities.[4] In particular, we update the International Table of Frequency Allocations (International Table) within the Allocation Table so that it reflects the allocation changes that were made at the World Radiocommunication Conference (Geneva, 2007) (WRC-07), which can be found in the *WRC-07 Final Acts*.[5] We implement these amendments to the Allocation Table with the assistance and concurrence of the National Telecommunications and Information Administration (NTIA).[6] This action serves as a

---

[1] The Allocation Table consists of the International Table of Frequency Allocations (International Table), the United States Table of Frequency Allocations (U.S. Table), and the Rule Part Cross References, as described in further detail herein. 47 C.F.R. § 2.106.

[2] *See* 47 C.F.R. §§ 2.1(c), 2.100, 2.101(b), 2.104(c)(2), 2.105(d)(5), 2.201(b).

[3] Specifically, we make non-substantive editorial revisions to the rules for Quiet Zones and the service rules for Radio Frequency Devices, Satellite Communications, Radio Broadcast Services, and Private Land Mobile Radio Services. *See* 47 C.F.R. §§ 1.924(b)(3) and (e)(1), 15.5(a), 15.113(a), 25.202(a)(5), 73.702(f)-(h), 90.35(g), respectively.

[4] Because the actions we take are non-substantive in nature, notice and comment are not required under 5 U.S.C. § 553(b).

[5] *See* International Telecommunication Union (ITU) Final Acts of the World Radiocommunication Conference (Geneva, 2007) (*WRC-07 Final Acts*) at http://www.itu.int/publ/R-ACT-WRC.8-2007/en. The *WRC-07 Final Acts* are a partial revision of the 2004 Edition of the ITU *Radio Regulations*, which entered into force on January 1, 2009, except that certain footnotes and associated allocations have provisionally applied since November 17, 2007. *See WRC-07 Final Acts*, Article 59 and Resolution 97 (WRC-07). All websites listed in this Order were last visited on February 2, 2010.

[6] NTIA is an agency of the United States Department of Commerce that serves as the President's principal advisor on telecommunications and information policy issues. NTIA manages Federal use of the radio spectrum and coordinates Federal use with the FCC. NTIA sets forth regulations for Federal use of the radio spectrum within its *Manual of Regulations and Procedures for Federal Radio Frequency Management* (*NTIA Manual*). *See* 47 C.F.R. § 2.1.

prelude to a rulemaking proceeding that we anticipate initiating in the near future to address substantive changes to the United States Table of Frequency Allocations (U.S. Table) that will be necessary to implement the *WRC-07 Final Acts*.

II. BACKGROUND

2. The International Telecommunication Union (ITU), under the auspices of the United Nations, periodically convenes a World Radiocommunication Conference to address international spectrum use. The Commission conducted its primary preparations for WRC-07 via its 2007 World Radiocommunication Conference Advisory Committee (WAC), which held 11 public meetings between January 30, 2004, and December 13, 2006, to evaluate and approve recommendations and preliminary views that it later submitted for Commission consideration.[7] The *U.S. Proposals for WRC-07* that resulted from this process addressed many of the items on the WRC-07 agenda.[8] In addition, the United States worked with other administrations to craft inter-American (*i.e.*, Region 2) proposals.[9]

3. The ITU convened WRC-07 from October 22-November 16, 2007, in Geneva, Switzerland with 164 Member States, including the United States, participating.[10] WRC-07 addressed 30 agenda items related to almost all terrestrial and space radio services and applications, and adopted allocation changes that relate to radio frequency (RF) bands used by both Federal Government (Federal) and non-Federal Government (non-Federal) entities in the United States. The ITU published the actions taken at WRC-07 as the *WRC-07 Final Acts* and subsequently revised the ITU *Radio Regulations* to include these actions.[11]

4. On August 20, 2009, NTIA forwarded to the Commission its recommendations for implementation of the *WRC-07 Final Acts* in the U.S. Table.[12] To the extent practicable, we implement in this Order those recommendations that are of a non-substantive and editorial nature.[13]

---

[7] The Federal Advisory Committee Act (FACA) chartered the WAC to provide the Commission with advice and technical support and to recommend proposals for WRC-07. Each of the advisory committee's five Informal Working Groups (IWGs) discussed and drafted preliminary views and proposals and presented these drafts to the full Advisory Committee. Drafts approved by the Advisory Committee became the Committee's recommendations to the Commission. In addition, NTIA submitted letters to the Commission containing draft proposals that had been developed by the Federal agencies. By public notice, the Commission requested comment on the WAC's recommendations and the Federal proposals. After consideration by the U.S. Government, many of the recommendations and proposals became a part of the United States' views and draft proposals that formed the basis for discussions at bilateral, regional, and international meetings in preparation for WRC-07. *See* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-03-3907A1.pdf and http://www.fcc.gov/ib/wrc-07/.

[8] *See United States of America Proposals for the Work of the Conference*, plenary meeting, Document 5-E, dated February 9, 2007 (*U.S. Proposals for WRC-07)* at http://www.fcc.gov/ib/wrc-07/citel/R07-WRC07-C-0005MSW-E_.doc.

[9] *See CITEL Administrations Proposals for the Work of the Conference*, plenary meeting, Document 14-E, dated October 2, 2007, at http://www.fcc.gov/ib/wrc-07/rcp/citel/con14.doc

[10] *See* ITU Press Release titled "ITU World Radiocommunication Conference concludes after four weeks" at http://www.itu.int/newsroom/press_releases/2007/36.html.

[11] *See* ITU *Radio Regulations*, Edition of 2008 at Article 5 (titled "Frequency allocations"), Section IV (titled "Table of Frequency Allocations") (ITU *Radio Regulations* or ITU Allocation Table).

[12] *See* letter from Associate Administrator, Office of Spectrum Management, NTIA, to Chief, Office of Engineering and Technology (OET), dated August 20, 2009 (*NTIA WRC-07 Recommendations*). On September 21, 2009, NTIA corrected and supplemented its recommendations for WRC-07 domestic implementation. *See* letter from Associate Administrator, Office of Spectrum Management, NTIA, to Chief, OET, dated September 21, 2009 (*NTIA WRC-07 Supplement*). Over the course of the preparation of this Order, NTIA has provided additional suggestions and

(continued…)

5. The amendments in this instant Order are consistent with past Commission actions that updated and clarified the Allocation Table and related Rules.[14] As with those actions, this Order is limited to non-substantive revisions. The Chief, Office of Engineering and Technology, and the Managing Director adopt this Order under delegated authority.[15]

6. The Allocation Table in Section 2.106 of the Commission's Rules is the Commission's means of organizing and presenting how the radio spectrum is to be used in the United States and its insular areas by one or more radio services under specified conditions.[16] The Allocation Table is displayed as a formatted graphical table of six columns that are divided into cells,[17] and each cell represents a specific frequency band (band). The Allocation Table is comprised of the International Table,[18] which is subdivided into the Region 1 Table (column 1 of Section 2.106), the Region 2 Table (column 2 of Section 2.106), and the Region 3 Table (column 3 of Section 2.106),[19] the U.S. Table,[20] which is subdivided into the Federal Table of Frequency Allocations (Federal Table) (column 4 of Section 2.106) and the non-Federal Table of Frequency Allocations (non-Federal Table) (column 5 of Section 2.106),[21] and the FCC Rule Part Cross References (column 6 of Section 2.106).[22]

7. The International Table generally reflects the corresponding Regional allocation in the ITU *Radio Regulations* (except as discussed herein), and international footnote references are shown

(Continued from previous page)
clarifications. Together, the *NTIA WRC-07 Recommendations*, *NTIA WRC-07 Supplement*, and the NTIA coordination edits form the basis of the NTIA recommendations we discuss herein.

[13] See para. 77, *infra*.

[14] *See*, *e.g.*, Amendment of Part 2 of the Commission's Rules to Make Non-Substantive Revisions to the Table of Frequency Allocations, *Memorandum Opinion and Order*, DA 99-2743, 15 FCC Rcd 3459 (2000) (*First Table Clean-up Order*); *Order*, DA 02-1872, 17 FCC Rcd 15263 (2002); and Amendment of Parts 1, 2, 25, 73, 74, 90, and 97 of the Commission's Rules to Make Non-Substantive Editorial Revisions to the Table of Frequency Allocations and to Various Service Rules, *Memorandum Opinion and Order*, DA 08-530, 23 FCC Rcd 3775 (2008) (*Third Table Clean-up Order*).

[15] The Chief of OET is delegated authority to make non-substantive, editorial revisions to Part 2 of the Commission's Rules and regulations. The Managing Director is delegated authority to make non-substantive, editorial revisions to the Commission's Rules and regulations upon approval of the bureau primarily responsible for the particular part or section involved. 47 C.F.R. §§ 0.231(b), 0.241(h).

[16] An allocation (of a frequency band) is defined as an entry in the Table of Frequency Allocations of a given frequency band for the purpose of its use by one or more terrestrial or space radiocommunication services or the radio astronomy service under specified conditions. This term shall also be applied to the frequency band concerned. 47 C.F.R. § 2.1(c).

[17] We note that ITU *Radio Regulations* uses the term "box," instead of cell, in describing the Allocation Table. *See* ITU Radio Regulation No. 5.24 ("Where, in a box of the Table in Section IV of this Article, a band is…").

[18] The International Table is described in 47 C.F.R. § 2.104.

[19] 47 C.F.R. § 2.104(a), (h). For the allocation of radio frequencies, the ITU has divided the world into three Regions and has codified the allocations for these Regions in its Table of Frequency Allocations. The United States and most of its insular areas are in Region 2, which is essentially North America and South America. Region 1 is generally Europe, Africa, the Middle East, the former Soviet Union, and Mongolia. Region 3 is the rest of Asia and Australasia. See 47 C.F.R. § 2.104(b) and Figure 1 for the ITU's official definitions and map of the Regions, respectively.

[20] The U.S. Table is described in 47 C.F.R. § 2.105.

[21] In the United States, radio spectrum may be allocated for either Federal or non-Federal use exclusively, or for Federal/non-Federal shared use. 47 C.F.R. § 2.105(b).

[22] The FCC Rule Part Cross References are described in 47 C.F.R. § 2.105(e).

within the Regional Tables.[23] The Federal Table contains the bands that NTIA administers, and the non-Federal Table contains the bands that the Commission administers.[24] The U.S. Table contains references to United States (U.S.), non-Federal, Federal, and certain international footnotes.[25] The text of the international, U.S., non-Federal, and Federal footnotes immediately follow the Allocation Table.[26] The FCC Rule Part Cross References contains cross references to the relevant FCC Rule Part(s), where applicable.[27] The Allocation Table includes the International Table, the Federal Table, and the FCC Rule Part Cross References for informational purposes only.[28] In the paragraphs below, we discuss the modifications we make to each of the tables described above.

8. When we refer to U.S., non-Federal, and Federal footnotes in this Order, we will use the same nomenclature specified in Section 2.105 of the Commission's Rules and employed in the U.S. Table.[29] For the international footnotes we reference in this Order, however, we will substitute a different nomenclature to help identify those footnotes. Specifically, the ITU *Radio Regulations* refer to international footnote 5.53 as Radio Regulation (RR) No. 5.53, which is simply abbreviated as "No. 5.53." Instead of using this abbreviation, however, we will use the abbreviation "RR 5.53."[30] We believe this will more clearly indicate that we are referring to an international footnote.[31] Prior to

[23] 47 C.F.R. § 2.104(h).

[24] 47 C.F.R. § 2.105(a).

[25] Where an international footnote is applicable, without modification, to both Federal and non-Federal operations, the Commission places the footnote in both the Federal Table and the non-Federal Table and the international footnote is binding on both Federal users and non-Federal licensees. If, however, an international footnote pertains to a service allocated only for Federal or non-Federal use, the Commission places the international footnote only in the affected Table. Any footnote consisting of "5." followed by one or more digits, *e.g.*, 5.53, denotes an international footnote. 47 C.F.R. § 2.105(d)(5)(i). U.S. footnotes appear in both the Federal and non-Federal Tables. Any footnote consisting of the letters "US" followed by one or more digits, *e.g.*, US7, denotes a stipulation affecting both Federal and non-Federal operations. 47 C.F.R. § 2.105(d)(5)(ii). Non-Federal footnotes appear solely in the non-Federal Table. Any footnote consisting of the letters "NG" followed by one or more digits, *e.g.*, NG2, denotes a stipulation applicable only to non-Federal operations. 47 C.F.R. § 2.105(d)(5)(iii). Federal footnotes appear solely in the Federal Table. Any footnote consisting of the letter "G" followed by one or more digits, *e.g.*, G2, denotes a stipulation applicable only to Federal operations. 47 C.F.R. § 2.105(d)(5)(iv).

[26] 47 C.F.R. § 2.106 INTERNATIONAL FOOTNOTES, UNITED STATES (US) FOOTNOTES, NON-FEDERAL GOVERNMENT (NG) FOOTNOTES, and FEDERAL GOVERNMENT (G) FOOTNOTES.

[27] 47 C.F.R. § 2.105(e).

[28] 47 C.F.R. §§ 2.104(a), 2.105(d)(3), (e).

[29] *See* 47 C.F.R. § 2.105(d)(5)(ii), (iii), and (iv). *See also* n.25, *supra*.

[30] As discussed above, Table 1 shows examples of the footnote nomenclature we will use when referring to an international, U.S., non-Federal, or Federal footnote in the Allocation Table, respectively.

Table 1: Examples of Footnote Nomenclature Used in this Order

Footnote	Current Lowest Number	Current Highest Number
International (RR)	5.53 (RR 5.53)	5.565 (RR 5.565)
United States (US)	US1	US402
Non-Federal Government (NG)	NG1	NG187
Federal Government (G)	G2	G133

[31] In addition, we note that the citation format is exactly the same for all footnotes to the Allocation Table, except for the specific footnote type and number (*e.g.*, RR 5.53 is formally cited as 47 C.F.R. § 2.106, international footnote 5.53). Instead of using this formal citation format for the footnotes referenced in this Order, we will dispense with such footnote citations herein.

WRC-07, the U.S. Table included references to 130 international footnotes. WRC-07 modified 19 and suppressed (*i.e.*, removed) 4 of those footnotes. In the paragraphs below, we also discuss those footnotes.

III. DISCUSSION

A. Updates to Display Format of the Allocation Table

1. Frequency Nomenclature

9. In Radio Regulation No. 2.1 of the 2008 Edition of the ITU *Radio Regulations*, frequencies are expressed in kilohertz (kHz) up to and including "3 000" kHz (*i.e.*, 3,000 kHz). In accordance with ITU Radio Regulation No. 2.1, we revise the Commission's Allocation Table by expressing frequencies in the High Frequency (HF) spectrum from 3025 to 27500 kHz in megahertz (MHz), *i.e.*, from 3.025 to 27.5 MHz.[32] This action simplifies the Allocation Table, minimizes a style difference between the ITU Allocation Table and the Commission's Allocation Table[33] and should help avoid any confusion.[34] WRC-07 added an explanatory note to the ITU *Radio Regulations* allowing reasonable departures from this style convention where it would pose serious difficulties (ITU Radio Regulation No. 2.1). Thus, in this Order, we reproduce that explanatory note in Section 2.101(b).[35]

2. Placement of U.S. Footnotes

10. In the *First Table Clean-up Order*, the Commission adopted the ITU's placement methodology for footnote references in the U.S. Table.[36] Thus, footnote references which appear in the U.S. Table below the allocated services in a band apply to more than one of the allocated services. Footnote references which appear to the right of a service allocation name are applicable only to that particular service.[37] We continue to believe that associating a footnote reference with its pertinent service will assist readers in more easily understanding the restrictions and/or other information pertaining to that allocation.

11. At NTIA's request, however, we make a refinement to our U.S. footnote placement policy. Specifically, in the case of bands with the same service allocation name listed in both the Federal and

---

[32] The Commission reproduces ITU Radio Regulation No. 2.1 in its Rules as Section 2.101, which is titled "Frequency and wavelength bands." Section 2.101 states that, *inter alia*, frequencies shall be expressed in kilohertz (kHz) for all frequencies up to and including 3 000 kHz (*i.e.*, 3,000 kHz) and that frequencies shall be expressed in megahertz (MHz) for all frequencies above 3 MHz, up to and including 3 000 MHz (*i.e.*, 3,000 MHz). We decline to split the band 2850-3025 kHz, and thus, the band 3025-3155 kHz is the first band in the U.S. Allocation Table expressed in MHz, *i.e.*, 3.025-3.155 MHz. *See* 47 C.F.R. § 2.101.

[33] In the ITU Allocation Table, a space is added to those frequencies and bands that contain four or five whole numbers, *e.g.*, 26 175 kHz (not 26,175 kHz or 26.175 MHz). In the Commission's Allocation Table, no space is added.

[34] Section 2.101(c) of the Rules also states that, in communications between administrations and the ITU, no names, symbols, or abbreviations should be used for the various bands other than those specified in Section 2.101.

[35] The second paragraph in ITU Radio Regulation No. 2.1 reads as follows: "However, where adherence to these provisions would introduce serious difficulties, for example in connection with the notification and registration of frequencies, the lists of frequencies and related matters, reasonable departures may be made." WRC-07 also added the following note (ITU Radio Regulation No. 2.1.1) to this paragraph, which we reproduce in Section 2.101(b): "In the application of the Radio Regulations, the Radiocommunication Bureau uses the following units: kHz for frequencies up to 28 000 kHz inclusive[;] MHz for frequencies above 28 000 kHz up to 10 500 MHz inclusive[; and] GHz for frequencies above 10 500 MHz."

[36] *See First Table Clean-up Order*, 15 FCC Rcd 3463 ¶ 5.

[37] Prior to that 1999 action, the Commission generally placed all footnotes at the bottom of a cell.

non-Federal Tables, we add the condition that for a U.S. footnote to be placed to the right of the service allocation name in the Federal Table, the U.S. footnote must contain a stipulation that is applicable to Federal operations. Similarly, for a U.S. footnote to be placed to the right of the service allocation name in the non-Federal Table, the U.S. footnote must contain a stipulation that is applicable to non-Federal operations. As an example, US13 provides for non-Federal use of 48 frequencies in 3 Federal bands (162.0125-173.2, 406.1-410, and 410-420 MHz). Under the Commission's current policy, US13 is placed at the bottom of the cell in the non-Federal Table, but is placed to the right of the fixed service (FS) allocation entry in the Federal Table, *i.e.*, "FIXED US13." Because US13 provides only for non-Federal use, however, we believe it is misleading that US13 is placed to the right of the Federal FS allocation entry. Accordingly, we modify the Commission's U.S. footnote display policy, as described above, to account for such a scenario. Consequently, we move US13 to the bottom of the cell in the Federal Table. Similarly, we move US319 (which restricts Federal use of certain mobile-satellite service (MSS) allocations to earth stations operating with non-Federal space stations) to the bottom of the cell in the non-Federal Table in the bands 148-149.9, 400.15-401, and 2483.5-2500 MHz.

3. Basing Domestic Footnote Numbers on Frequency Order

12. The Commission's practice for adding domestic (*i.e.*, U.S., non-Federal, and Federal) footnotes to the U.S. Table has generally been to number these footnotes in ascending order, based solely on the date when the footnote was adopted (*i.e.*, in chronological order). As a result, because there are currently only 176 actual U.S. footnotes to the U.S. Table within the existing range of U.S. footnote numbers (*i.e.*, 1-402) there are 226 unused U.S. footnote numbers.[38]

13. International footnotes to the ITU Allocation Table, however, are organized and numbered in frequency order (*i.e.*, footnotes are numbered according to the relative place in the radio spectrum of the frequency(ies) to which they refer). For example, currently the first international footnote (RR 5.53) concerns operations below 9 kHz and the last international footnote (RR 5.565) concerns operations in the band 275-1000 GHz. Generally, when a World Radiocommunication Conference adopts a new international footnote, the Conference adds the footnote to the ITU Allocation Table between two existing footnotes, and, if necessary, it appends a letter (or multiple letters) to the lower-adjacent footnote's number in order to not disturb the existing frequency order and footnote numbering (*e.g.*, WRC-07 added RR 5.430A between RR 5.430 and RR 5.431). However, in some cases, a Conference may decide to renumber an international footnote in order to preserve the sequential order. For example, WRC-07 added three bands (137-138, 387-390, and 400.15-410 MHz) to RR 5.347A which are below the lowest band that was listed in RR 5.347A prior to WRC-07 (*i.e.*, 1452-1492 MHz). Consequently, WRC-07 renumbered RR 5.347A as RR 5.208B. In Appendix B, we show the complete list of active international footnotes. We do not include the international footnotes that WRC-07 suppressed (*i.e.*, removed) or show the text of those that have expired.

14. In this Order, on a going-forward basis, we implement a new numbering system for domestic footnotes that is based on frequency order. Specifically, for a new (including "place-holder")[39] domestic footnote, we will number the footnote in frequency order. For a modified domestic footnote, the

[38] *See* 47 C.F.R. § 2.106 UNITED STATES (US) FOOTNOTES.

[39] A "place-holder" footnote is a new U.S. footnote that we create, as needed, to replicate the text of an international footnote that existed prior to modification of the footnote at a World Radiocommunication Conference. Such a footnote is inserted in the U.S Table in place of the international footnote that was modified, but which the Commission has not had the opportunity to consider, via a rulemaking proceeding, whether to include in the U.S. Table. The revised international footnote continues to be displayed in the International Table, but not the U.S. Table. If the Commission subsequently determines that a revised international footnote can be added without modification to the U.S. Table, then it will substitute the revised international footnote for the place-holder footnote, which it will consequently remove from the Rules.

Commission will consider whether to renumber the footnote in frequency order in the proceeding addressing the modifications to the footnote. Such actions will better align the U.S. Table with the ITU Allocation Table, which will bring greater consistency to Section 2.106, and thereby make the Allocation Table more useful to the public and spectrum managers. In addition, we believe that numbering domestic footnotes in frequency order will make them easier for readers to view because, in many instances, the footnotes from cells with multiple footnotes will be grouped together in the United States, non-Federal Government, and Federal Government footnotes that follow the Allocation Table in Section 2.106 of the Commission's Rules.[40] However, in order to ensure that the transition is non-disruptive for the public and spectrum managers, we restrict the renumbering in frequency order to those footnotes that we significantly revise in this Order.

15. We do, however, make an exception to our new domestic footnote numbering policy. Specifically, if a new, place-holder, or modified domestic footnote is based, in part, on an international footnote, we will number the domestic footnote by using, where possible, the related international footnote's number (*i.e.*, if there is not an existing domestic footnote with the same number as the related international footnote). For example, for the place-holder footnotes discussed in this Order, we base the numbering on the related international footnote's number.[41] For modified domestic footnotes, the Commission will consider in the associated proceeding whether to renumber the footnote with a related international footnote's number. We believe this action will assist both the public and spectrum managers by improving the organization and readability of the U.S. Table and by "pointing to" the international footnote on which, in part, the domestic footnote is based. Consequently, we amend the domestic footnote numbering nomenclature of the U.S. Table specified in Section 2.105(d)(5)(ii), (iii), and (iv) of the Commission's Rules to allow for the use of a letter (or letters) after the digits of a domestic footnote number.[42] Similarly, we amend Section 2.105(d)(5)(i) of the Commission's Rules to recognize that a World Radiocommunication Conference may append a letter, or letters, after the digits of the footnote number when it adds a new international footnote to the ITU Allocation Table. In order to ensure that this transition is non-disruptive for the public and spectrum managers, at this time, we renumber based on a related international footnote's number only those footnotes that we significantly revise in this Order.

16. In this Order, we add 14 U.S. footnotes and 3 non-Federal footnotes to the Allocation Table and reuse 2 existing U.S. footnote numbers (US226, US269). Specifically, consistent with our new frequency-order footnote numbering policy, we: 1) add a new footnote – US22 – in order to reflect in the U.S. Table 28 frequencies designated for disaster communications and 40 frequencies designated for long distance communications; 2) renumber 7 revised footnotes – US216, US294, US335, US399, NG19, NG128, and NG142; and 3) combine two footnotes – US351 and US352 (US37). However, for the following new or renumbered footnotes, we assign numbers based on a related international footnote's number: 1) the combination of US366, US367, and US396 into a single footnote (US136); 2) a new footnote – US142 – that, *inter alia*, highlights the availability of the high frequency broadcasting (HFBC) bands 7.2-7.3 and 7.4-7.45 MHz in Region 3 insular areas for U.S. international broadcasters; 3) four new place-holder footnotes that replicate the pre-WRC-07 text of four international footnotes which WRC-07 either modified or suppressed;[43] 4) revised versions of US217 and US229; 5) the combination of US7 and NG135 into a single footnote (US270); and 6) the combination of US269 and US311 into a single footnote (US385). The specific domestic footnotes discussed in this Order that we number (or renumber)

[40] See para. 7, *supra*.

[41] See, *e.g.*, para. 24, *infra*.

[42] 47 C.F.R. § 2.105.

[43] During the coordination process, NTIA informed us that the Navy station in Honolulu, Hawaii no longer receives on 198 kHz, and thus, US226 should be removed from the Commission's Rules. Consequently, we are able to re-use this U.S. footnote number for a different purpose in this Order. See para. 25, *infra*.

in frequency order are shown below in Table 2. The specific domestic footnotes discussed in this Order that we number (or renumber) based on an international footnote's number are shown below in Table 3.

Table 2: Domestic Footnotes Numbered or Renumbered in Frequency Order

Added	Principal Action	Band(s)	Issue/Reason for Action	Para(s).
US2	Revise US294	9-490 kHz	Clarify power line carrier (PLC) band; renumbering US294 provides greater internal consistency in the U.S. Table	48
US22	Add new footnote	2194-2495 and 2505-2850 kHz; 3.155-3.23, 4.438-4.65, 5.005-5.06, 6.765-7, and 7.45-8.1 MHz	Highlight the frequencies designated for disaster communications and long distance communications that are not coordinated with NTIA	43-47
US37	Combine US351 and US352	1390-1400 and 1427-1432 MHz	Remove expired authority for Federal stations to operate on a fully protected basis at 17 sites; combine explicit authority for Federal non-interference basis (NIB) operations	70
US73	Revise US216	462.94-463.19675 and 467.94-468.19675 MHz	Revise US216 by adjusting the two bands to reflect the channeling plan codified in 47 C.F.R. § 90.20(d)(65), (d)(66) (40 channel pairs commonly known as the MED channels)	64
US228	Revise US399	161.9625-161.9875 and 162.0125-162.0375 MHz	Reflect maritime mobile service (MMS) allocation and restrictions on use in US399 directly in U.S. Table; renumber US399 as US228 so footnote is in frequency order	55-56
US242	Revise US335	220-222 MHz	Improve the readability of US335 (regarding 220 MHz); renumber US335 as US242 so footnote is in frequency order	59
NG5	Revise NG128	535-1705 kHz, 88-108 MHz, and TV Bands	Remove the band 698-806 MHz from NG128 and NG142. Also, to provide greater consistency in the non-Federal Table, renumber NG128 and NG142 as NG5 and NG14, respectively.	65
NG14	Revise NG142	TV Bands (54-72, 76-88, 174-216, 470-608, and 614-698 MHz)		
NG7	Revise NG19	2000-2065, 2107-2170, and 2194-2495 kHz	Clarify fixed use of maritime radiotelephony frequencies	27-28

Table 3: Domestic Footnotes Numbered or Renumbered Based on Related International Footnote

Added	Principal Action	Band(s) (MHz)	Issue/Reason for Action	Related RR	Para(s).
US136	Combine US366, US367, and US396	5.9-6.2, 7.3-7.4, 9.4-9.9, 11.6-12.1, 13.57-13.87, 15.1-15.8, 17.48-17.9, and 18.9-19.02	Consolidate NIB use within eight HFBC bands into a single U.S. footnote	5.136	31-39
US142	Highlight availability of HFBC bands in U.S. Region 3 insular areas	7.2-7.3 and 7.4-7.45	Highlight availability of HFBC bands in U.S. Region 3 insular areas for U.S. international broadcasters; consolidate amateur sharing requirement into a single U.S. footnote; reflect most current requirement contained in RR 5.142	5.142	40-41
US226 US444 US444A US519	Maintain the pre-WRC-07 text of related international footnote	156.2475-156.7625 5030-5150 5091-5150 18100-18300	Provide place-holder footnotes for the pre-WRC-07 text of four international footnotes (5.227, 5.444, 5.444A, and 5.519)	5.226 5.444 5.444A 5.519	25 21-22 21, 23 24
US241	Revise US229	216-225	Move secondary Federal radiolocation service into US229; renumber US229 as US241	5.241	57-58
US269	Revise US217	420-450	Renumber US217 as US269 to make it easier to locate areas listed in US270; consolidate Amateur Radio Service 70-centimeter (cm) band use restrictions into single U.S. footnote; remove non-military radiolocation from US217	5.269	60-62
US270	Combine US7 and NG135			5.270	
US385	Combine US269 and US311	1350-1400, 1718.8-1722.2, 2655-2690, and 4950-4990	Add the current text of US269, along with the secondary allocation status of the radio astronomy service in the 2655-2690 MHz band that is shown in the U.S. Table, to US311	5.385	61

B. Updates to International Table

17. In this Order, we update the International Table to reflect Article 5, Section IV of the ITU *Radio Regulations*, Edition of 2008, except as described herein.[44] During our preparation of this Order, we discovered several display errors in the ITU Allocation Table. Consistent with past practice, we will not replicate typographical or other errors that hold the potential to cause reader confusion or convey misleading information.[45] Accordingly, we incorporate the following corrections and updates in the International Table in Section 2.106 of the Commission's Rules. First, we list in alphabetical order according to the French language: 1) the primary services in the Region 2 Table followed by the secondary service for the band 698-806 MHz; 2) the services in the Region 1 Table for the band 790-862 MHz; and 3) the services in the bands 960-1164, 1300-1350, 9300-9500, and 9500-9800 MHz. Second, we place RR 5.345 below the allocated services in the Region 1, Region 2, and Region 3 Tables for the band 1452-1492 MHz. Third, we merge the bands 2120-2160 and 2160-2170 MHz in the Region 1 and Region 3 Tables to form the band 2120-2170 MHz because those bands list the same services and footnotes.[46] We base these corrections and updates upon the format specified in the ITU *Radio Regulations*.[47]

18. With regard to international footnotes, we make the following 34 corrections: 1) revise the text of 32 international footnotes (5.58, 5.141, 5.143C, 5.165, 5.169, 5.173, 5.185, 5.201, 5.202, 5.206, 5.247, 5.279A, 5.281, 5.319, 5.322, 5.342, 5.352A, 5.388B, 5.389F, 5.400, 5.417A, 5.425, 5.439, 5.447F, 5.453, 5.468, 5.494, 5.500, 5.508A, 5.509A, 5.522C, and 5.549) so that it fully comports with the ITU *Radio Regulations*;[48] 2) capitalize "Earth" in RR 5.335; and 3) change "service" to "services" in the last sentence of RR 5.482. In addition, we make the following simplifications in 13 international footnotes: 1) update the cross references to 8 ITU Resolutions (Resolutions 33, 124, 143, 212, 221, 222, 223, and 528) in 8 international footnotes (5.345, 5.353A, 5.357A, 5.388, 5.388A, 5.396, 5.462A, and 5.516B) to the version listed in Volume 3 of the 2008 Edition of the ITU *Radio Regulations*;[49] 2) remove

---

[44] The differences that are discussed in this section between the ITU Allocation Table and the International Table in Section 2.106 of the Commission's Rules are listed in note 1 to the FCC Online Table of Frequency Allocations, which is available at http://www.fcc.gov/oet/spectrum/table/fcctable.pdf. We have previously made several corrections and updates to the FCC Online Table. First, on March 5, 2009, we corrected the text of 32 international footnotes. Second, on March 12, 2009, we removed 21 of the 26 international footnotes that WRC-07 suppressed. Third, on March 23, 2009, we moved RR 5.562F to the bottom of the cell in the International and U.S. Tables in accordance with the ITU Allocation Table; and, in the Region 1 Table, we merged the bands 2120-2160 and 2160-2170 MHz. *See* the FCC Allocation History File, which is available at http://www.fcc.gov/oet/spectrum/table/FAHF.pdf. For completeness, we note that there are also certain style differences between Section 2.106 and the ITU *Radio Regulations*. First, in the numbers specifying frequency bands, we do not add a space between the third and fourth digits. Second, for international footnotes, we do not bold cross references to the ITU *Radio Regulations*, nor do we indicate the history of an international footnote. (For example, the ITU *Radio Regulations* lists suppressed RR 5.63 with the notation "(SUP – WRC-97)," whereas Section 2.106 does not list this footnote.)

[45] *See*, *e.g.*, *Third Table Clean-up Order*, 23 FCC Rcd at 3776 n.15 (correcting several display errors).

[46] We previously merged these bands in the Region 3 Table. WRC-07 suppressed RR 5.392A, and as a consequence of its removal from the band 2160-2170 MHz, we are now also simplifying the Region 1 Table.

[47] *See* ITU *Radio Regulations* at Nos. 1.51, 5.24, 5.25, 5.26, 5.48, and 5.51.

[48] We discovered minor discrepancies in these footnotes (*e.g.*, Member State names and their placement) during our preparation of this Order, and on March 5, 2009, we corrected these discrepancies in the FCC Online Table.

[49] Although these eight international footnotes contain a "Note by the Secretariat" stating that a subsequent WRC updated a Resolution(s), the 2008 Edition of the ITU *Radio Regulations* contains only the current version of these Resolution(s) (see Volume 3). In order to assist readers, we revise the text of these international footnotes in Section 2.106 to directly list the version that is currently shown in the ITU *Radio Regulations*. Table 4, below, shows the existing and updated cross references. See Appendix B for the complete text of these footnotes.

(continued…)

the text of 4 international footnotes relating to the recently concluded 7 MHz Realignment (5.138A, 5.139, 5.141C, and 5.143E) from Section 2.106;[50] and 3) do not show note 1 of RR 5.208A (which states that this footnote was previously numbered as RR 5.347A). For the 15 international footnotes that we have either corrected or simplified in Section 2.106, we add the notation "(FCC)" to the end of the footnote.

19. We also partially implement a notation scheme used in the ITU *Radio Regulations* in the Commission's list of international footnotes. Specifically, the abbreviation "(WRC-07)" to the right of an international footnote signifies that WRC-07 modified or added the footnote.[51]

C. Updates to International Footnotes in the U.S. Table

1. Suppressed International Footnotes

20. WRC-07 suppressed three international footnotes (5.83, 5.199, and 5.476) that the U.S. Table currently references. In this Order, we remove the references to these international footnotes from the U.S. Table. Prior to WRC-07, RR 5.83 stated that 500 kHz is an international distress and calling frequency for Morse radiotelegraphy. Because the Commission previously removed any reference to 500 kHz as a distress and safety frequency from Part 80 of its Rules, we remove the reference to RR 5.83 from the U.S. Table.[52] Prior to WRC-07, RR 5.199 allocated two 100-kilohertz bands to the MSS for the reception on board satellites of emissions from emergency position-indicating radiobeacons

(Continued from previous page)

Table 4: Updates to Cross References in Eight International Footnotes

RR	Version of the Resolution Directly Listed in:	
	ITU Allocation Table (existing)	Section 2.106 (updated)
5.345	"528 (WARC-92)."	"528 (Rev.WRC-03). (FCC)"
5.353A and 5.357A	"222 (WRC-2000)"	"222 (Rev.WRC-07)… (FCC)"
5.388	"212 (Rev.WRC-97)"… "223 (WRC-2000)"	"212 (Rev.WRC-07)"… "223 (Rev.WRC-07).) (FCC)"
5.388A	"221 (Rev.WRC-03)"	"221 (Rev.WRC-07) (FCC)""
5.396	"33 (Rev.WRC-97)"	"33 (Rev.WRC-03)… (FCC)"
5.462A	"124 (WRC-97)."	"124 (Rev.WRC-2000). (FCC)"
5.516B	"143 (WRC-03)."	"143 (Rev.WRC-07). (FCC)"

[50] The ITU's 7 MHz Realignment plan became effective on March 29, 2009. Thus, the ITU's transition plan, which is contained in these four international footnotes, is now moot, and the international allocations listed in the Regional Tables are fully effective. See the 7 MHz Realignment discussion at paras. 30-42, *infra*.

[51] In Table 5, below, are the 25 international footnotes that WRC-07 suppressed. Although these footnotes are listed in the ITU *Radio Regulations* with the notation "(SUP – WRC-07)", we decline to follow this convention and will not list these footnotes in Section 2.106.

Table 5: WRC-07 Suppressed Footnotes

5.83*	5.198	5.203B	5.347	5.380	5.411	5.559A
5.129	5.199*	5.311	5.347A**	5.390	5.420A	
5.174	5.203	5.321	5.348C	5.392A	5.476*	
5.184	5.203A	5.339A	5.363	5.409	5.509	
*Listed in U.S. Table. **Renumbered as 5.208B.						

[52] *See* Amendment of Parts 13 and 80 of the Commission's Rules Concerning Maritime Communications, WT Docket No. 00-48, *Report and Order and Further Notice of Proposed Rule Making*, 17 FCC Rcd 6741, 6761 ¶ 45 (2002) (*Maritime R&O*).

(EPIRBs) transmitting on 121.5 and 243 MHz.[53] Because the National Oceanic and Atmospheric Administration (NOAA) ceased satellite processing of 121.5/243 MHz emergency beacons' signals on February 1, 2009,[54] at the request of NTIA, we remove the references to RR 5.199 from the U.S. Table.[55] Prior to WRC-07, RR 5.476 contained a prohibition on the use of shipborne radars in the band 9300-9320 MHz (other than those existing on January 1, 1976). Because this international prohibition expired on January 1, 2001, and because the Commission has already removed the prohibition from Part 80 of its Rules, we remove the references to RR 5.476 from the U.S. Table.[56]

2. Modified International Footnotes

21. WRC-07 modified 19 international footnotes that are currently referenced in the U.S. Table. In this section, we review these international footnotes. Three of these international footnotes – 5.444, 5.444A, and 5.519 – embody substantive allocation changes that, in order to become effective in the United States, would need to be adopted in a future rulemaking proceeding. Because in this Order we update the text of all international footnotes to reflect the *WRC-07 Final Acts*, we also create three place-holder U.S. footnotes – US444, US444A, and US519 – that replicate the pre-WRC-07 text of RR 5.444, RR 5.444A, and RR 5.519, respectively, and replace the references to these three international footnotes in the U.S. Table. By these actions, we maintain the *status quo* in the U.S. Table until such time as the Commission may consider the substantive modifications that WRC-07 made to these three international footnotes. We address these three international footnotes in the following paragraphs.

22. Prior to WRC-07, RR 5.444 stated that, in the band 5030-5150 MHz, the requirements of the international standard system (microwave landing system or MLS) take precedence over other uses of this band. WRC-07 revised RR 5.444 such that MLS requirements take precedence over other uses only in the band 5030-5091 MHz. Thus, we add new place-holder US444 to the list of U.S. footnotes and, in the Federal and non-Federal Tables, we replace the references to RR 5.444 with that of US444. The text of new US444 is the same as the pre-WRC-07 text of RR 5.444, except that we revise the reference to "No. 5.444A" to read "US444A."[57]

23. Prior to WRC-07, RR 5.444A stated, *inter alia*, that in the band 5091-5150 MHz, after January 1, 2012, no new assignments will be made to earth stations providing feeder links for non-geostationary orbit (NGSO) systems; and that, prior to January 1, 2018, MLS requirements which cannot be met in the band 5000-5091 MHz take precedence over other uses of this band. WRC-07 revised RR 5.444A by extending the date after which no new assignments will be made to earth stations providing NGSO feeder links to January 1, 2016, and by suppressing MLS precedence over other uses of the band 5091-5150 MHz. Thus, to preserve the *status quo* in the U.S. Table, we add new place-holder

[53] The radiobeacons operating at 243 MHz were primarily used by the military services.

[54] *See* NOAA's Search and Rescue Satellite-Aided Tracking (SARSAT) webpage at http://www.sarsat.noaa.gov.

[55] The Commission previously amended its Part 80 rules to phase out the use of 121.5 MHz EPIRBs, and the use of such EPIRBs has been discontinued since December 31, 2006. *See Maritime R&O*, 17 FCC Rcd at 6761-62 ¶ 47; 47 C.F.R. §§ 80.1053, 80.1055, 80.1059. *See NTIA WRC-07 Recommendations* at 14 and 19.

[56] At the recommendation of the U.S. Coast Guard, the Commission removed this restriction from Part 80 in 2002. *See Maritime R&O*, 17 FCC Rcd at 6770 ¶ 75.

[57] In addition, at the recommendation of NTIA, in the U.S. Table, we sub-divide the band 5030-5250 MHz into three bands – 5030-5091, 5091-5150, and 5150-5250 MHz – and as a consequence of replacing RR 5.444 with US444, we simplify the U.S. Table by displaying common allocations in two bands (5030-5091 and 5091-5150 MHz) as a combined Federal/non-Federal entry. We also remove the unneeded reference to US344 in the band 5000-5091 MHz. *See NTIA WRC-07 Recommendations* at 37. See Appendix B for these revisions to the U.S. Table.

footnote US444A to the list of U.S. footnotes and, in the non-Federal Table, we replace the reference to RR 5.444A with that of US444A. The text of new US444A is the same as the pre-WRC-07 text of RR 5.444A, except that we added the phrase "for non-Federal use."[58] In order for the WRC-07 modifications to RR 5.444 and RR 5.444A to become effective in the United States, the Commission must adopt them in a future rulemaking proceeding.

24. Prior to WRC-07, RR 5.519 stated that the band 18.1-18.3 GHz is also allocated to the meteorological-satellite service (space-to-Earth) on a primary basis, that use of this allocation is limited to geostationary orbit (GSO) satellites, and that the power flux-density (pfd) limits must be in accordance with the provisions of Article 21, Table 21-4.[59] WRC-07 expanded this allocation by 100 megahertz in all Regions, and removed the cross reference to the pfd limits in Table 21-4. Thus, we add new place-holder US519 to the list of U.S. footnotes and, in the Federal and non-Federal Tables, we replace the references to RR 5.519 with that of US519. The text of new US519 is the same as the pre-WRC-07 text of RR 5.519. In order for the WRC-07 allocation decision contained in RR 5.519 to become effective in the United States, the Commission must adopt it in a future rulemaking proceeding.

25. Prior to WRC-07, RR 5.227 designated the frequency 156.525 MHz exclusively to digital selective calling (DSC) for distress, safety, and calling. WRC-07, however, took the text from RR 5.227, modified it slightly and combined it with the modified text of RR 5.226, and then reused the footnote number 5.227 for another allocation.[60] In combining the revised requirements for 156.525 MHz with the modified text of RR 5.226, WRC-07 highlighted the 156.525 MHz MMS frequency, additionally specified a 75-kilohertz allocation centered at 156.525 MHz (*i.e.*, 156.4875-156.5625 MHz) for the MMS, and restricted the use of this allocation to distress, safety, and calling via DSC. In addition, WRC-07 revised Appendix 18 of the ITU *Radio Regulations* to require that all precautions be taken to avoid harmful interference to the frequency 156.525 MHz when using the adjacent frequencies (156.500 and 156.550 MHz). In order to preserve the *status quo* in the U.S. Table, we add a new place-holder footnote – US226 – to the list of U.S. footnotes that replicates the pre-WRC-07 text of RR 5.226 and RR 5.227 that is applicable to the 156.2475-156.7625 MHz band, and, in the Federal and non-Federal Tables, we replace the references to RR 5.226 and RR 5.227 in that band (156.2475-156.7625 MHz) with that of US226.[61] In order for the WRC-07 allocation decisions now in RR 5.226 and RR 5.227 to become effective in the United States, the Commission must adopt them in a future rulemaking proceeding.

26. WRC-07 modifications to the remaining 14 international footnotes are minor in nature, and require no further action on our part beyond updating the text of these footnotes to reflect the text now specified in the ITU *Radio Regulations*. Specifically, nine of the modified international footnotes

---

[58] It is necessary to add this phrase because the Commission added the reference to RR 5.444A only to the non-Federal Table (*i.e.*, the NGSO MSS feeder-link allocation is not available to Federal agencies).

[59] Prior to WRC-07, RR 5.519 required that the pfd limit be in accordance with Article 21, Table 21-4. WRC-07, however, removed this pointer. Because the pfd limits in Table 21-4 are a separate ITU requirement, this change is non-substantive.

[60] WRC-07 reused RR 5.227 to additionally allocate the bands 156.4875-156.5125 and 156.5375-156.5625 MHz to the FS and land mobile service (LMS) on a primary basis.

[61] Because WRC-07 modified and moved the text of RR 5.227 (and thus the international MMS allocation at 156.525 MHz) to RR 5.226 and reused the number 5.227 for another allocation, the new place-holder footnote is related to RR 5.226. Thus, we number this place-holder footnote as US226. As a simplification for US226, however, the reference to Appendix 13 of the ITU *Radio Regulations*, previously referenced in RR 5.226 and RR 5.227 but suppressed at WRC-07, is not shown. Not showing this reference is a non-substantive change because Appendix 13 provided a transitional means of interconnection between the Global Maritime Distress and Safety System (GMDSS) and non-GMDSS platforms. In the United States, this transition concluded on February 1, 1999. *See* 47 C.F.R. § 80.1065(b)(4).

(5.84, 5.108, 5.111, 5.115, 5.130, 5.145, 5.200, 5.256, and 5.266) involve the deletion of a reference to Appendix 13 of the ITU *Radio Regulations*, which WRC-07 suppressed,[62] and five of the modified international footnotes (5.79A, 5.82, 5.134, 5.287, and 5.328A) involve updates and the removal of expired information.

D. Updates to U.S. Table and Domestic Footnotes Below 30 MHz

1. Fixed Use of Maritime Radiotelephony Frequencies

27. Section 80.371 of the Rules describes the radiotelephony working frequencies that are assignable to ship and public coast stations. Paragraph (a) of Section 80.371 contains a table that describes the working carrier frequency pairs in the band 2000-4000 kHz. NG19 states that fixed stations associated with the maritime mobile service (MMS) may be authorized, for purposes of communication with coast stations, to use the frequencies that are assignable to ship stations in this band on the condition that harmful interference will not be caused to services operating in accordance with the Table of Frequency Allocations.

28. Because NG19 does not explicitly state the bands to which it applies, it may not be readily apparent to readers that it applies to the three bands in which it is listed in the U.S. Table (*i.e.*, 2000-2065, 2107-2170, and 2194-2495 kHz).[63] In order to assist readers, we explicitly list the above three bands in NG19, and provide a cross reference to Section 80.371(a) for the list of available carrier frequencies. Also, NG19 applies to two services. Accordingly, in the bands 2107-2170 and 2194-2495 kHz, we move the reference to NG19 in the non-Federal Table from the right of the mobile except aeronautical mobile service (MS except AMS) allocation to the bottom of the cell. Because we revise NG19, we also renumber this footnote in frequency order as NG7. See Appendix B for the revised text of NG7.

29. We also note that the band 2000-3000 kHz is listed in the Public Safety Pool Frequency Table in Section 90.20(c)(3) and that its use is restricted to fixed stations that operate in accordance with Limitation 75.[64] We further note that only the bands 2107-2170 and 2194-2495 kHz in the U.S. Table contain the appropriate cross references in the FCC Rule Part Cross References column of the Allocation Table. Accordingly, for the band 2000-2065 kHz, we add "Private Land Mobile (90)" in the FCC Rule Part Cross References.

2. The 7 MHz Realignment

30. On March 10, 2005, the Commission implemented pertinent allocation decisions from the World Radiocommunication Conference (Geneva, 2003) (WRC-03) and updated certain of its service Rules.[65] One of the most significant decisions in that action was the 7 MHz Realignment.[66] Because the

---

[62] See n.61, *supra*.

[63] Of the 43 frequencies listed in the ship transmit column of Section 80.371(a), only 2086 kHz (which is available in the Caribbean) is not included in 1 of the 3 bands.

[64] *See* 47 C.F.R. §§ 90.20(c)(3), 90.20(d)(75).

[65] *See* Amendment of Parts 2, 25, and 73 of the Commission's Rules to Implement Decisions from the World Radiocommunication Conference (Geneva, 2003) (WRC-03) Concerning Frequency Bands Between 5900 kHz and 27.5 GHz and to Otherwise Update the Rules in this Frequency Range, ET Docket No. 04-139, *Report and Order*, 20 FCC Rcd 6570 (2005) (*WRC-03 Omnibus R&O*).

[66] *Id.* at ¶¶ 11-76.

7 MHz Realignment transition period concluded on March 29, 2009, we take several actions to simplify and finalize the allocation display in the bands that comprise 6.765-8.1 MHz.[67]

a. Non-Interference Basis (NIB) Operations in Eight HFBC Bands

31. Until March 29, 2009, the band 7.35-7.4 MHz (*i.e.*, the upper half of the 7 MHz band) was allocated in all Regions to the FS and HFBC on a co-primary basis and to the land mobile service (LMS) on a secondary basis. The upper half of the 7 MHz band is now allocated to the HFBC on an exclusive basis throughout the world, except in those countries listed in RR 5.143C where the FS and the HFBC continue to be allocated on a co-primary basis.

32. In this section, we simplify the authority for certain types of Federal and non-Federal stations to continue operating in eight HFBC bands in a manner that does not affect the ability of the general public in the United States to directly receive programming from international broadcast stations (NIB operations).[68] Specifically, we update and consolidate the NIB authority for Federal stations in the FS to operate in 13 HF bands/sub-bands (HF NIB Bands), for Federal stations in the mobile except aeronautical mobile route (R) service (MS except AM(R)S)[69] to also operate in 4 of these bands, and for grandfathered non-Federal stations to operate in certain of these bands.

33. First, we note that non-Federal operations in the 13 HF NIB bands are currently authorized in 2 U.S. footnotes – US366 and US396. Specifically, US366 restricts non-Federal use of the HF NIB Bands to stations in the FS and MS except AMS (*i.e.*, the LMS and the MMS) that were licensed prior to March 25, 2007. Given the existing non-Federal licensees in the HF NIB Bands that were licensed prior to March 25, 2007, US366 consequently authorizes the following non-Federal NIB operations: 1) MMS stations may continue operating in the bands 5.9-5.95, 13.57-13.6, 13.8-13.87, and 18.90-19.02 MHz (the 6, 13.6, 13.8, and 19 MHz bands), and in the band 7.3-7.35 MHz (*i.e.*, the lower half of the 7 MHz band); 2) FS and LMS stations may continue operating in the bands 7.3-7.35 MHz and 9.4-9.5 MHz (9 MHz); and 3) FS stations may continue operating in the bands 11.6-11.65, 12.05-12.1, 13.8-13.87, and 15.6-15.8 MHz (the 11, 12, 13.8, and 15 MHz bands).[70] Further, US396 states that non-Federal use of the band 7.35-7.4 MHz (*i.e.*, the upper half of the 7 MHz band) is restricted to FS, LMS, and MMS stations that were licensed prior to March 29, 2009, except that a small sub-band at 7.3685-7.3713 MHz, within the upper half of the 7 MHz band, was not reallocated for exclusive HFBC use and is instead authorized for continued use by Alaska private-fixed stations.[71]

---

[67] See para. 18, *supra*, for a description of changes we make in the International Table.

[68] Specifically, NIB operations are authorized throughout two HFBC bands (7.3-7.4 and 18.9-19.02 MHz) and in sub-bands within six other HFBC bands (*i.e.*, 5.9-6.2, 9.4-9.9, 11.6-12.1, 13.57-13.87, 15.1-15.8, and 17.48-17.9 MHz).

[69] "MS" is generally used as the abbreviation for the "mobile service," which is comprised of the aeronautical mobile service (AMS), the LMS, and the MMS. The AMS is a mobile service between aeronautical stations and aircraft stations, or between aircraft stations, in which survival craft stations may participate; emergency position-indicating radiobeacon stations may also participate in this service on designated distress and emergency frequencies. The AM(R)S – a subset of the AMS – is reserved for communications relating to safety and regularity of flight, primarily along national or international air routes, and is not usually associated with Federal use. 47 C.F.R. § 2.1(c).

[70] See Table A1 in Appendix A.

[71] Specifically, US396 states "that, in Alaska, the sub-band 7368.5-7371.3 kHz is allocated to the fixed service on an exclusive basis for non-Federal use in accordance with 47 CFR 80.387." During our review, we found that the assigned frequency band for this 2.8 kHz allocation is not in accordance with the definition of "assigned frequency band" in Section 2.1, which is the "definitive…definition and shall prevail throughout the Commission's Rules." Therefore, we correct this assigned frequency band by reflecting the frequency tolerance for Alaska fixed stations –

(continued…)

34. Second, we note that Federal NIB operations in the 13 HF NIB Bands are currently authorized in 3 U.S. footnotes – US366, US367, and US396 – and that new Federal stations may be authorized in 10 of theses bands. Specifically, US366 authorizes Federal FS stations to operate in 10 of the 13 HF NIB Bands, *i.e.*, the 6, 9, 11, 12, 13.6, 13.8, 15, and 19 MHz bands, in the band 7.3-7.35 MHz (the lower half of the 7 MHz band), and in the band 17.48-17.55 MHz (17 MHz). US366 also authorizes Federal stations in the MS except AMS (*i.e.*, the LMS and MMS) to operate in the 6, 13.6, and 13.8 MHz bands, and in the lower half of the 7 MHz band.

35. Also, US367 authorizes Federal use of 3 of the 13 HF NIB Bands (9.775-9.9, 11.65-11.7, and 11.975-12.05 MHz). Specifically, Federal use of the band is restricted to FS stations that were authorized as of June 12, 2003, and each grandfathered station is restricted to a total radiated power of 24 dBW. Finally, US396 authorizes Federal stations in the FS, LMS, and MMS to operate in the upper half of the 7 MHz band.

36. Accordingly, we combine the text of US366, US367, and US396 into a single U.S. footnote that consolidates the authority for Federal and non-Federal stations to operate in the 13 HF NIB Bands. Consistent with our new footnote numbering policy, we number this new U.S. footnote as US136.[72]

37. We observe that non-Federal stations in the FS, LMS, and MMS will operate on a NIB to foreign-licensed international broadcast stations, irrespective of whether they are recognized in US136. The focus of our action here is to better inform NTIA of non-Federal incumbent operations in the HF NIB Bands, and thereby minimize the effort required to coordinate new Federal FS and MS except AM(R)S stations in those bands. Therefore, because our review revealed that non-Federal LMS stations operate in the 9 MHz band, we list this service in the consolidated text of US136 despite the fact that the 9 MHz band was never allocated to that service.[73] In addition, because our review revealed that there is no longer any non-Federal FS or LMS stations operating in the 6 MHz band or any non-Federal FS stations operating in the 13.8 MHz band, we revise the consolidated text in US136 by removing these unused non-Federal allocations.[74]

38. At the request of NTIA, we revise the consolidated text in US136 in order to reflect the full range of Federal NIB assignments in the 6, 7, 13.6, and 13.8 MHz bands.[75] Specifically, NTIA states

(Continued from previous page)
20 Hz – which is listed in Section 80.209(a). As background, we note that Section 80.387 states that: 1) the carrier frequency 7368.5 kHz is assignable for point-to-point simplex radiotelephone communications between private fixed stations in Alaska; 2) the peak envelope power must not exceed 1 kW for radiotelephony; and 3) teleprinter use is authorized. On May 18, 2010, the Commission's Universal Licensing System (ULS) listed 17 call signs for the assigned frequency 7369.9 kHz (*i.e.*, the assigned frequency associated with the carrier frequency 7368.5 kHz) in Alaska (emission designator 2K80J3E). The assigned frequency bandwidth for these Alaska fixed stations is 2.84 kHz (*i.e.*, the necessary bandwidth (2.8 kHz) plus twice the absolute value of the frequency tolerance (2 x 20 Hz)). Thus, at the assigned frequency 7369.9 kHz, this results in the assigned frequency band 7368.48-7371.32 kHz. 47 C.F.R. §§ 2.1, 2.106 US296, 80.209(a), and 80.387(a)-(b).

[72] We number this new footnote as US136 because related RR 5.136 provides for NIB operation in the 6 MHz band.

[73] See Table A1 in Appendix A.

[74] *Id*.

[75] Prior to the implementation of the WARC-79 HFBC allocations in the 2003 *Below 28 MHz R&O*, the 6, 7, 13.6, and 13.8 MHz (together, 13 MHz) bands were allocated in the Federal Table to the: (a) FS and the MS except AM(R)S on a primary basis; (b) the FS on a primary basis and the MS on a secondary basis; and (c) the FS on a primary basis and the MS except AM(R)S on a secondary basis, respectively. *See* Amendment of Parts 2, 73, 74, 80, 90, and 97 of the Commission's Rules to Implement Decisions from World Radiocommunication Conferences Concerning Frequency Bands Below 28000 kHz, ET Docket No. 02-16, *Report and Order*, as amended by *Erratum*

(continued…)

that: 1) the United States sought and obtained explicit authority in the ITU *Radio Regulations* (*see* RR 5.136 and RR 5.151) to operate stations in the FS and MS except AM(R)S in these bands; and 2) the United States' right to operate stations in the MS except AM(R)S in the 7 MHz band on a NIB to HFBC is internationally recognized in ITU Radio Regulation No. 4.4. Because such operations by their nature do not affect non-Federal stations, we conclude that this editorial revision promotes clarity by stating in the consolidated text of US136 that Federal stations in the MS except AM(R)S currently operate in the 6, 7, 13.6, and 13.8 MHz bands and that NTIA can authorize new Federal stations in the MS except AM(R)S in these bands.

39. As an aid to readers, we revise the consolidated text in US136 as follows: In paragraph (a), we reflect the Commission's previous decision to alternatively allocate a small sub-band (*i.e.*, the "assigned frequency band" 7368.48-7371.32 kHz) within the upper 7 MHz band for continued use by Alaska private-fixed stations.[76] In paragraph (b), we reflect the requirements that pertain to NIB use of the HFBC bands. In paragraphs (b)(1) and (b)(2), respectively, we list the restrictions that apply to Federal stations and non-Federal stations operating in the 13 HF NIB bands. We also include a table that lists the authorized Federal and non-Federal uses of the 13 HF NIB bands. See Appendix B, Section 2.106, for the text of new footnote US136. Finally, we remove the text of two expired U.S. footnotes – US394[77] and US395[78] – from Section 2.106 of the Commission's Rules.

b. Amateur Radio Service and International Broadcast Stations

40. 40-meter band. Because the 7 MHz Realignment transition period has concluded, we replace RR 5.142 (which contains an expired requirement regarding use of the band 7.1-7.2 MHz) in the U.S. Table with a new U.S. footnote that contains only the current requirement in RR 5.142 ("The use of the band 7.2-7.3 MHz in Region 2 by the amateur service shall not impose constraints on the broadcasting service intended for use within Region 1 and Region 3.").[79] Consequently, we number this new footnote as US142, which places it in frequency order and links it to the related international footnote RR 5.142. Also, in the FCC Rule Part Cross References column of the Allocation Table, we change all instances of "Amateur (97)" to read "Amateur Radio (97)."

41. HFBC. We also highlight that, in the Region 3 insular areas, the bands 7.2-7.3 and 7.4-7.45 MHz are alternatively allocated for use by international broadcast stations that transmit their programming to listeners in Region 1 and Region 3 by reflecting this allocation from the Region 3 Table

(Continued from previous page)
(incorporated), 18 FCC Rcd 3423, 3429-30 ¶13 (2003) (*Below 28 MHz R&O*). *See also* 47 C.F.R. § 2.106 (2002 Edition).

[76] See n.71*, supra*.

[77] Until March 29, 2009, US394 maintained the primary FS and secondary MS allocations in the band 6.765-7 MHz. After that date, the allocations shown in the U.S. Table (*i.e.*, primary FS and MS except AM(R)S) became effective.

[78] The International Table shows a primary allocation for the amateur service in the band 7.1-7.2 MHz in all Regions. However, RR 5.141C provided for a co-primary broadcasting service allocation in the band 7.1-7.2 MHz in Region 1 and Region 3 until March 29, 2009. Moreover, US395 required that, until March 29, 2009, amateur stations transmitting in the band 7.1-7.2 MHz not impose constraints on the reception of international programming intended for use in Region 1 or Region 3.

[79] The Commission recently made non-substantive revisions to the frequency sharing requirements in Section 97.303. With regard to the 40-meter band, the Commission renumbered paragraph (t) as paragraph (i) and revised the text of this paragraph to read as follows: "Amateur stations transmitting in the 7.2-7.3 MHz segment must not cause harmful interference to, and must accept interference from, international broadcast stations whose programming is intended for use within Region 1 or Region 3." Amendment of the Amateur Service Rules to Facilitate Use of Spread Spectrum Communications Technologies, WT Docket No. 10-62, *Notice of Proposed Rule Making and Order*, 25 FCC Rcd 3374 (2010) (*Amateur NPRM and Order*).

in new US142 and by separating these bands from the larger bands 7.1-7.3 and 7.4-8.1 MHz in the U.S. Table.[80] We take this action because U.S. international broadcast stations regularly operate in these areas and because it allows us to highlight in the FCC Rule Part Cross References column that, in the U.S. Region 3 insular areas, the bands 7.2-7.3 and 7.4-7.45 MHz are available for licensing under Part 73, Subpart F (*i.e.*, international broadcast stations).[81] See Appendix B for the text of US142. In addition, as a consequence of the conclusion of the 7 MHz Realignment, we update Section 73.702(f)-(h) to reflect the availability of spectrum for international broadcast stations.[82]

42. In a related matter, we simplify the display of 14 HFBC bands in the U.S. Table by merging adjacent bands, which differ only by footnote references, to form 6 larger bands as shown in Table A3 in Appendix A. In the FCC Rule Part Cross References column, we replace all instances of "Radio Broadcast (HF)(73)" with "International Broadcast Stations (73F)" in order to better highlight the availability of the spectrum for international broadcasting use. See Appendix B for the revisions to the U.S. Table.

3. Preferred Frequencies for Disaster and Long Distance Communications

43. In the Public Safety Pool Frequency Table, the use of frequencies in the band 2000 to 10,000 kHz (*i.e.*, 2-10 MHz) is restricted to disaster communications and operational communications circuits are expressly prohibited.[83] Only the central governments of the 50 States, the District of Columbia, and the U.S. insular areas are eligible to use this spectrum. Section 90.264, *inter alia*, restricts disaster communications to those bands between 2 and 10 MHz that are allocated to the FS and LMS.[84] By Public Notice, the Commission specified 28 carrier frequencies and their associated assigned frequencies as available for use in accordance with Section 90.264 for disaster communications between 2 and 10 MHz.[85]

[80] In Region 3, the bands 7.2-7.3 and 7.4-7.45 MHz are allocated to the broadcasting service on a primary basis. The operation of stations in the Pacific insular areas that are located in Region 3 is generally governed by the Region 3 Table. Where a band is indicated in a footnote of the International Table to be "allocated" to one or more services in an area smaller than a Region, or in a particular country, this is an "alternative" allocation, *i.e.*, an allocation that replaces, in this area or in this country, the allocation indicated in the Table. We will use this ITU term in the U.S. Table because its format is based on the ITU Allocation Table. A ULS search on March 6, 2008, for the bands 7.2-7.3 and 7.4-7.45 MHz, limited to American Samoa, Guam, the Northern Mariana Islands, and the United States minor islands, revealed that there are no licenses. *See* 47 C.F.R. §§ 2.104(f), 2.105(a) n.3.

[81] U.S. frequency assignments in the bands 7.2-7.3 and 7.4-7.45 MHz are limited to international broadcast stations that are located in the Pacific insular areas located in Region 3 that transmit to geographical zones and areas of reception in Region 1 or Region 3. *See* 47 C.F.R. § 73.702(h)(1). See Table A2 in Appendix A for the revisions to the Allocation Table as a result of the 7 MHz Realignment.

[82] *See* Appendix B at Section 73.702(f)-(h).

[83] *See* the band "2000 to 10,000" kHz in Public Safety Pool Frequency Table (47 C.F.R. § 90.20(c)(3)); and, in particular, limitations 6 and 89 (47 C.F.R. § 90.20(d)(6) and (89)). We note that the class of station for the disaster frequencies is fixed, base, or mobile.

[84] *See* 47 C.F.R. § 90.264, Disaster communications between 2 and 10 MHz.

[85] *See* Local Government Radio Service 2 to 10 MHz Frequency List, *Public Notice*, Memo No. 2419. The disaster frequencies are from four Federal/non-Federal shared bands (2194-2495 and 2505-2850 kHz; 5.06-5.45 and 7.4-8.1 MHz). The Commission authorizes the use of the disaster frequencies individually (not by band, as is the case with long distance frequencies).

44. The use of these 28 disaster frequencies is restricted in the Public Notice by power (1 kW peak envelope power (PEP)), emission type (2K80J3E),[86] and class of station (fixed stations may operate on all frequencies; base and land mobile stations may also operate on the lowest 18 frequencies). Also, although 17 of the frequencies are available without geographic, purpose, or time restrictions, the Public Notice further restricted 11 of the disaster frequencies either by geographic scope (1 of the "Day only" use frequencies is available only for stations that are located in the conterminous U.S.), for a specific purpose (5 frequencies are designated as "alternate" and 5 frequencies are designated for "interstate coordination"), or by time of day (2 frequencies are available for "Day only" use).[87] We observe that NTIA agreed to nationwide non-Federal use of the 28 disaster frequencies in 1980, and thus, the Commission has not coordinated non-Federal use of these frequencies for approximately 28 years.[88]

45. In the Industrial/Business Pool Frequency Table, the use of frequencies in the band 2000 to 25,000 kHz (*i.e.*, 2-25 MHz) is restricted to the purposes specified in Limitation 1, which is a cross reference to 47 CFR 90.35(c)(1), and by class of station(s) (fixed, base, or mobile).[89] In addition, Section 90.266, *inter alia*, restricts the use of any particular frequency between 2 and 25 MHz to those bands that are allocated to the FS and LMS.[90]

46. By Public Notice, the Commission specified 40 carrier frequencies and their associated assigned frequencies in 6 bands (2194-2495 kHz; 3.155-3.4, 4.438-4.65, 5.005-5.45, 6.765-7, and 7.3-8.1 MHz) that are available for Part 90 long distance communications.[91] (We note that the band 7.3-7.4 MHz has since been reallocated to the HFBC.[92]) The Public Notice specifies each frequency's station class (fixed stations may operate on all frequencies; land mobile and base stations may also operate on the 13 lowest frequencies; and itinerant fixed stations may also operate on the 27 highest frequencies) and that these stations do not require coordination with NTIA as long as the transmitter power does not exceed 1 kW PEP.[93] In addition, these stations' emissions are limited to emission type

[86] Although the Public Notice actually lists "2.8A3J" as the emission type, we are using the modern equivalent emission designator "2K80J3E" in this Order.

[87] *See* Local Government Radio Service 2 to 10 MHz Frequency List, *Public Notice*, Memo No. 2419.

[88] Specifically, there is a coordination record for each of the disaster frequencies. Each of these coordination records: 1) state that the assigned frequency is used in the operation of a nationwide civil disaster radio response program and that all FCC licensees in the Local Government Radio Service are eligible to use these frequencies; and 2) provide for the use specified in Public Notice No. 2419 throughout the United States and its insular areas (except that – in accordance with the Public Notice – the frequency 7936.4 kHz is only available to stations located in the conterminous U.S.).

[89] *See* the band "2000 to 25,000" kHz in the Industrial/Business Pool Frequency Table (47 C.F.R. § 90.35(b)(3)); and, in particular, Limitations 1 and 90 (47 C.F.R. § 90.35(c)(1) and (90)).

[90] *See* 47 C.F.R. § 90.266, Long distance communications on frequencies below 25 MHz.

[91] *See* Corrected* 2-25 MHz Frequency Bands Available for Part 90 Long Distance Communications, *Public Notice*, Memo No. 4126, dated August 12, 1988. Although the Public Notice lists 10 bands as being available for use under Section 90.266, currently, 4 of the bands (*i.e.*, 2107-2170 kHz; 2.505-2.85, 4.75-4.995, and 5.73-5.95 MHz), do not contain frequencies that are not coordinated with NTIA. The Public Notice instructs applicants to indicate on their application the band(s) desired and the specific frequencies in each band needed to fulfill their requirements. It also states that authorizations for frequencies in these bands will indicate just the frequency bands and will state that only frequencies listed by Public Notice may be used. The Public Notice goes on to state that licensees may use only the frequencies listed in the attached Table in accordance with the geographic, time-of-day, and type-of-use limitations indicated; that these frequencies do not require coordination with the Federal Government; and that all other frequencies in these bands will require coordination. *Id*.

[92] 47 C.F.R. § 2.106.

[93] Although the 1 kW PEP power limitation has been removed from Section 90.266, for the specific purpose of US22 (see para. 47, *infra*), we maintain this power limitation.

2K80J3E and as specified in Section 90.266.[94] Also, although 20 frequencies are available to these stations without time or geographic restrictions, the Commission restricted the use of the remaining 20 frequencies. Specifically, the Public Notice restricts 8 frequencies by time of day (1 frequency is for "Day only" use and 7 are for "Night only" use) and restricts 13 frequencies by geographic scope (5 frequencies are for stations located East of 108° West Longitude (approximately the Continental Divide), 1 frequency is for stations located West of the Mississippi River, and 7 frequencies are for stations located West of 90° West Longitude).[95]

47. We have discussed this matter with NTIA, and it is our joint conclusion that, because it has not been necessary to revise the lists of available frequencies since 1980, we should reflect these important and long-standing uses in the Allocation Table. Accordingly, we reflect these frequencies in the Allocation Table by reproducing the list of 68 carrier frequencies and the restrictions on their use in a new U.S. footnote, which we number as US22.[96] We anticipate that most, if not all, non-Federal requirements for disaster and long distance communications can be met using these channels. In sum, this action is expected to be helpful to applicants by highlighting the availability of these frequencies and it in no way limits the Commission's ability to coordinate the use of other frequencies in the Federal/non-Federal shared bands with NTIA. See Appendix B for the text of US22.

4. Power Line Carrier Systems

48. We revise the text of US294 and a related reference in Part 90 of the Commission's Rules in order to clearly define the band within which Power Line Carriers (PLCs) must be coordinated in order to protect licensed stations, *i.e.*, the band 9-490 kHz. We note that this action is consistent with Section 15.113(b), which states that: "The signals from this [PLC] operation shall be contained within the frequency band 9 kHz to 490 kHz."[97] We also update a cross reference in Part 15 of the Commission's Rules. Specifically, we revise: 1) US294 by replacing the phrases "spectrum below 490 kHz" and "bands below 490 kHz" with the phrase "band 9-490 kHz" and by updating the PLC cross reference to the *NTIA Manual* from Chapter 7 to Chapter 8; 2) Section 90.35(g) by replacing the phrase "10-490 kHz" in the first sentence with the phrase "9-490 kHz;" and 3) Sections 15.5(a) and 15.113(a) by updating the cross reference from "§ 90.63(g)" to "§ 90.35(g)." Because we revise US294, we renumber this footnote in frequency order as US2. See Appendix B for the revised text of US2.

5. Forest Product Frequencies

49. We clarify and update US298 by changing "Channels 27555 kHz, 27615 kHz, 27635 kHz, 27655 kHz, 27765 kHz, and 27860 kHz" to read "The assigned frequencies 27.555, 27.615, 27.635, 27.655, 27.765, and 27.860 MHz." We note that these six frequencies are listed in the Industrial/Business Pool Frequency Table and that the use of these frequencies is restricted to base and mobile stations that operate in accordance with Limitation 89 in Part 90, which is a reproduction of

---

[94] *See* 47 C.F.R. § 90.266.

[95] *Id.*

[96] Given that each assigned frequency is 1.4 kHz above the related carrier frequency, we decline to list the assigned frequencies in US22. Instead, we simplify this new U.S. footnote by listing only the carrier frequencies and by restricting use of these frequencies to upper sideband transmissions. Also, consistent with the Public Notice, in the US22 table, we have added three lines to highlight the frequencies that are available in each of the six Federal/non-Federal shared bands (2194-2495 kHz; 3.155-3.4, 4.438-4.65, 5.005-5.45, 6.765-7, and 7.4-8.1 MHz) that are available for long distance communications. Although the frequencies for disaster communications are not licensed by band, for ease of use, we have also added two lines to highlight the frequencies in each of the four Federal/non-Federal shared bands (2194-2495 and 2505-2850 kHz; 5.06-5.45 and 7.4-8.1 MHz).

[97] *See* 47 C.F.R. § 15.113(b).

US298.[98] We further note that a cross reference to Part 90 is not shown in the band 27.54-28 MHz and we correct this oversight in this Order.[99]

E. Updates to U.S Table and Domestic Footnotes for VHF Bands (30 to 300 MHz)

1. Maritime Mobile Bands Display Changes

50. At the request of NTIA, we reflect the internationally specified uses for three VHF MMS frequencies – 156.8, 161.975, and 162.025 MHz – as described below.[100]

a. Distress, Safety, and Calling Frequencies

51. The pre-WRC-07 version of RR 5.226 states that the frequency 156.8 MHz is the international distress, safety, and calling frequency for the maritime mobile VHF radiotelephone service and that the conditions for its use are contained in Article 31.[101] In addition, a 75-kilohertz band centered on 156.8 MHz (*i.e.*, the band 156.7625-156.8375 MHz) is allocated exclusively for this purpose in all Regions (*i.e.*, the normal 25-kilohertz channel bandwidth that is authorized in the MMS is protected from harmful interference via the use of 25 kilohertz of guard-band spectrum on each side of the 25-kilohertz channel).[102]

52. In the United States, although the frequency 156.8 MHz is used in accordance with the ITU *Radio Regulations*[103] and RR 5.226 is currently listed in the Federal and non-Federal Tables, the 75-kilohertz band centered at 156.8 MHz is not directly shown in the U.S. Table. Instead, this allocation is codified in US107, which reads as follows:

> US107 The frequency 156.8 MHz is the national distress, safety and calling frequency for the maritime mobile VHF radiotelephone service for use by Federal and non-Federal ship and coast stations. Guard bands of 156.7625-156.7875 and 156.8125-156.8375 MHz are maintained.

53. In addition, NTIA recommends that the list of internationally permitted operations (*i.e.*, distress and calling communications) on 156.8 MHz be expanded by also listing urgency and safety. Specifically, NTIA notes that, consistent with Article 53 of the ITU *Radio Regulations*, urgency and safety communications are permitted in the 75-kilohertz band centered at 156.8 MHz,[104] and thus, these uses should also be listed in the parenthetical restrictions on transmissions to this MMS allocation.[105]

---

[98] *See* §§ 90.35(b)(3), 90.35(c)(89).

[99] A May 18, 2010, ULS search showed that the Commission has not yet issued any call signs for these six frequencies.

[100] *See NTIA WRC-07 Recommendations*.

[101] As a simplification, we do not note the expired conditions in Appendix 13 of the ITU *Radio Regulations* (see n.61, *supra*). We do note, however, that in 1947, the ITU first designated 156.8 MHz for worldwide use for safety, calling, and other purposes in the MMS (simplex telephony). *See Radio Regulations* annexed to International Telecommunication Convention (Atlantic City, 1947) at Radio Regulation No. 198 and Nos. 830-833 at 1679 and 1887, respectively.

[102] That is, there is an unused 25-kilohertz segment on each side of this maritime channel.

[103] Article 52 of the ITU *Radio Regulations* states that the frequency 156.8 MHz is the international frequency for distress traffic and for calling by radiotelephony when using frequencies in the authorized bands between 156 and 174 MHz. *See* ITU Radio Regulation No. 52.231.

[104] *See* ITU Radio Regulation No. 53.1.

[105] *See NTIA WRC-07 Recommendations*.

54. Because the 75-kilohertz band centered on 156.8 MHz has been allocated to the MMS on a primary, exclusive, and worldwide basis for distress and calling purposes since 1979, we conclude that further aligning the U.S. Table with the International Table would be consistent with the Commission's established policy. A search of the Commission's licensing database showed that the 75-kilohertz band centered on 156.8 MHz is licensed to coast and ship stations, except for stations operating under four call signs,[106] which are authorized on an unprotected and non-interference basis.[107] Since the 75-kilohertz band at 156.8 MHz is not encumbered with other allocated services, displaying that band in the U.S. Table would be equivalent to our current footnote allocation. Thus, we find it would be appropriate to simplify the U.S. Table by mirroring the international table. Accordingly, we reflect in the U.S. Table the primary MMS allocation in the band 156.7625-156.8375 MHz, which is restricted to distress, urgency, safety, and calling transmissions. See the allocation entry and parenthetical restrictions on transmissions "MARITIME MOBILE (distress, urgency, safety and calling)" as shown in Table A4 in Appendix A and in the U.S. Table in Appendix B. Consequently, we remove US107 from Section 2.106 of the Rules.

b. Automatic Identification System

55. In September, 2008, the Commission adopted "additional measures for domestic implementation of Automatic Identification Systems (AIS), an advanced marine vessel tracking and navigation technology that can significantly enhance our Nation's homeland security as well as maritime safety."[108] With regard to that *Order*, the most significant decisions were to: 1) "designate maritime VHF Channel 87B for exclusive AIS use throughout the Nation;" and 2) "determine that only Federal Government (Federal) entities should have authority to operate AIS base stations."[109] In addition, in accordance with the Maritime Transportation Security Act, the Commission specified that the United States Coast Guard (USCG) regulates AIS carriage requirements for non-Federal ships.[110]

56. At the request of NTIA, we highlight the two AIS frequencies – 161.975 MHz (AIS 1) and 162.025 MHz (AIS 2) – by directly reflecting in the U.S. Table the MMS allocation for these frequencies and the restrictions on their use contained in US399. In addition, we simplify and clarify US399 by consolidating part of the grandfathering text in an introductory phrase and by adding paragraph labeling for each of the grandfathering cases. Consistent with our new footnote numbering policy discussed above, we also renumber US399 in frequency order as US228.[111] As a result, the U.S. Table

---

[106] On May 18, 2010, we conducted a ULS study of the 75-kilohertz band centered at 156.8 MHz and found 5,219 call signs (Regular authorization type and active status). These call signs are licensed in the Coastal Group (MC) Radio Service, except for three call signs. Although two of these three call signs authorize operations within the scope of this MMS allocation (WDS82 authorizes a private coast station in the Alaska Group Radio Service and WYY2 authorizes search and rescue operations in accordance with Section 87.173), call sign WPLT721 authorizes an unallocated use. Thus, the three mobile stations authorized under call sign WPLT721 operate on a NIB to allocated services, and we do not consider that call sign herein.

[107] The assignment of frequencies and bands of frequencies to all stations and classes of stations and the licensing and authorizing of the use of all such frequencies between 9 kHz and 275 GHz, and the actual use of such frequencies for radiocommunication or for any other purpose, shall be in accordance with the Allocation Table. On the condition that harmful interference will not be caused to services operating in accordance with the Allocation Table, certain specified exceptions may be authorized. *See* 47 C.F.R. § 2.102(a), (b).

[108] *See* Amendment of the Commission's Rules Regarding Maritime Automatic Identification Systems, WT Docket No. 04-344, *Second Report and Order*, 23 FCC Rcd 13711 (2008) at ¶ 1 (*AIS 2nd R&O*); *Erratum*, 24 FCC Rcd 3241 (2009).

[109] *See AIS 2nd R&O*, 23 FCC Rcd at 13712 ¶ 1.

[110] These requirements are codified at 33 C.F.R. §§ 164.46, 401.20. *See* 47 C.F.R. § 80.393.

[111] We note that WRC-07 adopted RR 5.227A, which provides for satellite reception of the AIS 1 and AIS 2 bands. Although RR 5.227A provides for satellite-only AIS reception, we conclude that US399 should be renumbered as US228 so that this AIS-related footnote is numbered in frequency order.

now displays two 25-kilohertz bands centered on AIS 1 and AIS 2, respectively, (*i.e.*, 161.9625-161.9875 and 162.0125-162.0375 MHz), in combined Federal/non-Federal cells within the U.S. Table with the entry "MARITIME MOBILE (AIS) US228." See Appendix B for the revisions to the U.S. Table and the revised text of US228.

2. Radiolocation Band Display Changes

57. In this section, we simplify and correct the display of the band 216-225 MHz in the U.S. Table. As background, in the Region 2 Table, the band 216-225 MHz is allocated, *inter alia*, to the radiolocation service (RLS) on a secondary basis and RR 5.241 further restricts the use of this allocation to RLS stations that were authorized prior to January 1, 1990.

58. US229. During the coordination process, NTIA advised us that, because RR 5.241 prohibits any new RLS stations from being authorized in the band 216-225 MHz, Federal RLS use of that band is necessarily limited to those stations authorized pursuant to US229 and to air-search radars aboard USCG vessels that transmit on 220 MHz with a necessary bandwidth of 70 kHz (*i.e.*, these emissions occupy the sub-band 219.965-220.035 MHz). Therefore, NTIA requests that we remove the secondary Federal radiolocation service allocation in the bands 216-217 MHz and 220-225 MHz from the Federal Table and that we list the 70 kilohertz band that is used by the USCG in US229.[112] As a result of removing the RLS allocation entry from the Federal Table, the Federal and non-Federal Tables are exactly the same for the band 220-222 MHz. Accordingly, we list the allocations and footnotes in this band once in a combined U.S. Table entry, as shown in Table A5 in Appendix A. We also update and revise US229 for clarity, consistency, and simplicity.[113] Because we revise US229, we renumber this footnote with a number – US241 – that is based on the related international footnote RR 5.241. See Appendix B for the revisions to the U.S. Table and the updated text of US241.

3. Fixed and Land Mobile Bands Display Changes

59. US335. In order to improve the readability of US335, which sub-divides the band 220-222 MHz into seven paired bands (one Federal exclusive band, four non-Federal exclusive bands, and two shared bands), we place the bands in a table, list the bands in frequency order, and add four headings (Use, Base Transmit, Mobile Transmit, and Channel Nos.). We also reproduce certain information from Sections 90.715, 90.720, and 90.719 in new paragraphs (a), (c), and (d), respectively, in order to provide a basic understanding of the national plan for 220 MHz and to make it clear that the use of 10 shared channels (Channels 161-170) is restricted to public safety/mutual aid communications and that the use of 5 shared channels (Channels 181-185) is restricted to emergency medical communications.[114] In addition, we move the existing provision in US335 for temporary fixed

[112] The USCG is authorized to operate mobile stations in the radiolocation service that transmit on 220 MHz using a necessary bandwidth of 70 kilohertz in the Atlantic and Pacific Oceans, *i.e.*, USCG vessels may operate air-search radars in the sub-band 219.965-220.035 MHz. As such, this Order necessarily must correct an error that occurred in the *Third Table Clean-up Order*. Specifically, in that action, we inadvertently deleted half of the necessary bandwidth for this USCG system from the Allocation Table. Accordingly, we restore the secondary Federal radiolocation service allocation in the sub-band 220-220.035 MHz in this Order. At the request of NTIA, we revise G2 (which restricts the use of the Federal radiolocation service in the listed bands to the military services) by replacing the bands "216-217 MHz, 220-225 MHz" with the band "216.965-216.995 MHz."

[113] At NTIA's request, we also update US241 by revising "Navy's Space Surveillance (SPASUR) radar system" to read "the Air Force Space Surveillance System (AFSSS) radar system."

[114] The second sentence in paragraph (a) in Section 90.715 reads as follows: "Frequencies shall be assigned in pairs, with base station frequencies taken from the 220-221 MHz band with corresponding mobile and control station frequencies being 1 MHz higher and taken from the 221-222 MHz band." Section 90.720 is titled "Channels available for public safety/mutual aid." Section 90.719 states that channels 181-185 are set aside for emergency medical use. *See* 47 C.F.R. §§ 90.715(a), 90.720(a), 90.720(c).

geophysical telemetry operations to paragraph (b). Because we revise US335, we renumber this footnote in frequency order as US242. See Section 2.106 in Appendix B for the revised text of US242.

F. Updates to U.S. Table and Domestic Footnotes for UHF Bands (300 to 3000 MHz)

1. Non-Federal Use of Military Radar Band 420-450 MHz

60. In this section, we address several issues related to the band 420-450 MHz, which is allocated to the Federal radiolocation service on a primary basis. Under G2, NTIA has restricted the use of this allocation to the military services,[115] except as provided for in US217 and G129.[116] Although the band 420-450 MHz (70-centimeter (cm) band) is allocated to the amateur service on a secondary basis, the band 420-430 MHz is not allocated to the amateur service North of Line A.[117] Amateur stations may transmit in the 70-cm band at full power (*i.e.*, transmitter power may not exceed 1.5 kW PEP), except in the areas specified in US7, where transmitter power is generally restricted to 50 W PEP. NTIA has informed us that, due to the light Federal use of the authority provided for in US217, this footnote should be restricted to non-Federal use only.[118] Specifically, NTIA determined that non-military use of the band 420-450 MHz is sufficiently infrequent that it prefers to manage this military band by accepting waivers of G2 from non-military users. As a consequence of its decision, NTIA requests that we revise G2 by removing the reference to US217. See Appendix B for the revised text of G2.

61. Non-Federal Radiolocation. At the request of NTIA, we simplify US217 by restricting its applicability to non-Federal use. In addition, in order to simplify the Rules and ensure that geographic areas listed in this footnote are consistent with those listed in US7 (which we combine with NG135 and renumber as US270[119]), we remove the geographic areas currently listed in US217 and replace them with a cross reference to paragraph (a) of the consolidated footnote US270 discussed below. For ease of use, we also renumber US217 as US269 so that the referenced geographic areas can be easily found in adjacent US270.[120] In order to accomplish this advantageous renumbering, we add the current text of

---

[115] *See* 47 C.F.R. § 2.106 FEDERAL GOVERNMENT (G) FOOTNOTES at G2.

[116] G129, which authorizes wind profilers, is not at issue in this Order. *See* 47 C.F.R. § 2.106 FEDERAL GOVERNMENT (G) FOOTNOTES at G129.

[117] *See* 47 C.F.R. § 2.106 NON-FEDERAL GOVERNMENT (NG) FOOTNOTES at NG135.

[118] Under US217, in the band 420-450 MHz, pulse-ranging radiolocation systems may be authorized for use along the shoreline of the conterminous United States and Alaska. In the sub-band 420-435 MHz, spread spectrum radiolocation systems may be authorized within the conterminous United States and Alaska. All stations operating in accordance with this provision shall be secondary to stations operating in accordance with the Table of Frequency Allocations. Authorizations shall be granted on a case-by-case basis; however, operations proposed to be located within the following geographic areas should not expect to be accommodated: (a) Arizona, Florida, and New Mexico; (b) those portions of California and Nevada that are South of latitude 37º10' N; (c) that portion of Texas that is West of longitude 104º W; (d) Within 322 km (200 miles) of Eglin AFB, FL (30º 30' N, 86º 30' W); Patrick AFB, FL (28º 21' N, 80º 43' W); and the Pacific Missile Test Center, Point Mugu, CA (34º 09' N, 119º 11' W); (e) within 240 km (150 miles) of Beale AFB, CA (39º 08' N, 121º 26' W); (f) within 200 km (124 miles) of Goodfellow AFB, TX (31º 25' N, 100º 24' W) and Robins AFB, GA (32 º 38' N, 83º 35' W); and (g) within 160 km (100 miles) of Clear, AK (64º 17' N, 149 º 10' W); Concrete, ND (48º 43' N, 97º 54' W); and Otis AFB, MA (41º 45' N, 70º 32' W).

[119] See para. 62, *infra*.

[120] During our review of the non-Federal operations in the band 420-450 MHz, we found that the radiolocation and amateur footnote numbers could be based on the footnote numbers of RR 5.269 and RR 5.270, respectively. Such a renumbering would place these footnotes in frequency order, would permit us to simplify the radiolocation footnote by not listing the geographic sites, and would make it easier for readers of US269 to find the site list in the adjacent footnote US270.

US269, which urges fixed and mobile except aeronautical mobile licensees in the 2655-2690 MHz band to coordinate their systems, along with the secondary allocation status of the radio astronomy service in the 2655-2690 MHz band that is shown in the U.S. Table, to US311, and renumber US311 as US385.[121] See Appendix B for the text of US269 and US385.

62. 70-cm Amateur Radio Service Band. In order to consolidate all of the restrictions on amateur radio service operations in the band 420-450 MHz in one footnote, we combine the text from US7 and NG135 into a single U.S. footnote, which we number as US270. We choose to number the consolidated footnote as US270 because RR 5.270 contains the secondary amateur service allocation for the bands 420-430 and 440-450 MHz in the United States and three other countries. See Section 2.106 in Appendix B for the text of US270.

2. Two-Way Air-Ground Public Radiotelephone Service

63. In preparing this Order, we discovered that the reference to NG12 in the band 456-460 MHz is missing from the non-Federal Table.[122] Therefore, we take this opportunity to correct this omission by reinserting the reference to NG12 in the band 456-460 MHz in the non-Federal Table. See Appendix B for this correction to the non-Federal Table.

3. MED Channels

64. Medical Radiocommunication Systems. In order to properly reflect the channeling plan used by medical radiocommunication systems, which consists of 40 channel pairs and is codified in paragraphs (d)(65) and (d)(66) of Section 90.20 (commonly known as the MED channels), we revise US216 by adjusting the bandwidths of the two bands that are specified for use by medical radiocommunication systems.[123] Specifically, we replace the bands 462.94688-463.19688 MHz and 467.94688-468.19688 MHz in US216 with the bands 462.94-463.19675 MHz and 467.94-468.19675 MHz, respectively.[124] Thus, we renumber US216 as US73. See Section 2.106 in Appendix B for the revised text of US73.

[121] We find this consolidation to be appropriate because, by definition, the secondary radio astronomy service allocation, which is directly listed in the band 2655-2690 MHz,"[c]annot claim protection from harmful interference from stations of a primary service to which frequencies are already assigned or may be assigned at a later date." *See* 47 C.F.R. Section 2.105(c)(2)(ii). As a consequence of this renumbering, we also update the cross reference to US311 contained in US74 to US385. See Appendix B for the revised text of US74.

[122] NG12 reads as follows: Frequencies in the bands 454.40-455 MHz and 459.40-460 MHz may be assigned to domestic public land and mobile stations to provide a two-way air-ground public radiotelephone service. *See also* 47 C.F.R. § 22.805, which lists the frequencies for the general aviation air-ground service.

[123] *See* 47 C.F.R. § 90.20(d)(65)-(66).

[124] These changes are based on the following facts: The lowest and highest frequencies listed for these bands are in channel MED-9 (462.95 and 467.95 MHz) and channel MED-83 (463.19375 and 468.19375 MHz). In the Public Safety Pool Frequency Table, Limitation 44 applies to MED-83, and thus, its frequencies are assigned an authorized bandwidth not to exceed 6 kilohertz. Because MED-9 is not specifically limited, its frequencies are assigned an authorized bandwidth not to exceed 20 kilohertz; *see* 47 C.F.R. § 90.209(b)(5). Subtracting 0.01 megahertz (*i.e.*, 10 kilohertz, which is half the maximum authorized bandwidth for MED-9) from 462.95 and 467.95 MHz yields 462.94 and 467.94 MHz, respectively. Adding 0.003 megahertz (*i.e.*, 3 kilohertz, which is half the maximum authorized bandwidth for MED-83) to 463.19375 and 468.19375 MHz yields 463.19675 and 468.19675 MHz, respectively.

4. Television Bands

65. NG128 and NG142. NG128 and NG142 authorize ancillary uses of TV Channels 2-36 and 38-69. Specifically, NG128 authorizes, *inter alia*, TV broadcast licensees or permittees to use subcarriers on a secondary basis for both broadcast and non-broadcast purposes. NG142 states that TV broadcast stations may use a portion of the television vertical blanking interval for the transmission of telecommunications signals, on the condition that harmful interference will not be caused to the reception of primary services, and that such telecommunications services must accept any interference caused by primary services operating in these bands. The bands 698-763, 775-793, and 805-806 MHz – which are allocated to the fixed, mobile, and broadcasting services – are regulated under Part 27 and have been auctioned for Commercial Mobile Radio Service (CMRS) use. To the extent that these Part 27 licensees choose to implement the uses specified in NG128 and NG142, they may do so under their primary FS allocation. Accordingly, we remove the band 698-806 MHz from NG128 and NG142. For clarity, we also amend NG128 by revising "licensees or permittees" (three instances) to read "licensees and permittees." Because we revise NG128 and NG142, we renumber these footnotes in frequency order as NG5 and NG14, respectively. See Section 2.106 in Appendix B for the revised text of NG5 and NG14.

5. Public Safety Bands

66. In this section, we reflect the availability of certain public safety bands in the Allocation Table. We take this action in order to assist both non-Federal applicants and sponsored Federal agencies, and to facilitate the rapid conclusion of the 800 MHz-band transition.

67. Section 2.103(b) of the Commission's Rules states that Federal stations may be authorized to use frequencies in specified 700 MHz, 800 MHz, and 4.9 GHz Bands that are allocated for exclusive non-Federal use if the Commission finds that such use is necessary and Federal operations are in accordance with the Commission's Rules governing the service to which the frequencies involved are allocated.[125] In 1998, the Commission concluded that Federal entities are ineligible for Commission licensing in the 700 MHz Public Safety Band, but found that "if a state or local governmental licensee desires for a Federal public safety entity to receive access to some or all of its licensed frequencies, the licensee can join in the request, under the NTIA/FCC process, to authorize Federal use of its non-government frequencies for noncommercial public safety services."[126]

68. In July 2004, the Commission adopted the *800 MHz R&O*, which reconfigured the 800 MHz band for private radio services that operate in the paired bands 806-824/851-869 MHz.[127] In general, the *800 MHz R&O* moved a dedicated public safety band (generally known as the

[125] *See* 47 C.F.R. § 2.103, which is titled "Federal use of non-Federal frequencies."

[126] In general, these assignments contain a supplementary statement ("required for cooperative law enforcement activities"), a letter of support (new or on file), and record note "S160." The Commission's staff is then able to very quickly process these routine applications. Because of the large number of Federal stations that still must transition to the new band plan, we highlight the Public Safety Bands in the Allocation Table, which could then be placed in the *NTIA Manual*. *See* The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010, WT Docket No. 96-86, *First Report and Order and Third Notice of Proposed Rulemaking*, 14 FCC Rcd 152, 183 at ¶¶ 60-69 (1998).

[127] *See* Improving Public Safety Communications in the 800 MHz Band, WT Docket 02-55, *Report and Order, Fifth Report and Order, Fourth Memorandum Opinion and Order, and Order*, 19 FCC Rcd 14969 (2004), as amended by *Erratum*, DA 04-3208, 19 FCC Rcd 19651 (2004), and *Erratum*, DA 04-3459, 19 FCC Rcd 21818 (2004) (*800 MHz R&O*, *Erratum*, and *Second Erratum*). The Federal Register published the *800 MHz R&O* on November 22, 2004, and the rule changes took effect on January 21, 2005. *See* 69 Fed. Reg. 67283 (2004). *See also Supplemental Order and Order on Reconsideration*, WT Docket No. 02-55, 19 FCC Rcd 25120 (2004).

National Public Safety Planning Advisory Committee (NPSPAC) Band) from 821-824/866-869 MHz to 806-809/851-854 MHz; and established a contiguous block of paired spectrum for Enhanced Specialized Mobile Radio (ESMR) use at 817-824/862-869 MHz, which the Commission licensed to Nextel (now Sprint Nextel).

69. Accordingly, we revise how the Part 90 cross references in the 700 MHz, NPSPAC, and 4.9 GHz bands are displayed in column six of the Allocation Table in order to reflect that the Public Safety Land Mobile Radio Service (PSLMRS) is the specific Private Land Mobile Radio Service that is designated to use these bands and that Part 90 specifies certain portions of these bands for PSLMRS operations.[128] In order to better assist Federal agencies, we also highlight the 700 MHz and NPSPAC bands in the Federal Table by subdividing the band 698-890 MHz into nine smaller bands (698-763, 763-775, 775-793, 793-805, 805-806, 806-809, 809-851, 851-854, and 854-890 MHz). We decline to add a U.S. footnote that would point to Section 2.102 at this time. See Appendix B for the updates to the U.S. Table.

6. U.S. Footnote Changes in the Band 1390-1432 MHz

70. We make several changes to the bands that comprise 1390-1432 MHz. First, at the request of NTIA, we update US351 by removing the expired authority for Federal stations to operate in the band 1390-1400 MHz on a fully protected basis at 17 sites. In doing so, we note that the text of updated US351and the existing text of US352 are essentially identical. Therefore, we combine the explicit authority for Federal NIB operations to continue in the band 1390-1400 MHz (US351) and in the band 1427-1432 MHz (US352) into a single U.S. footnote (US37). We also note that Federal agencies may, without further authority from NTIA, purchase and operate Wireless Medical Telemetry Service (WMTS) devices that have been certified by the Commission.[129] Accordingly, we update the parenthetical exception text to better reflect the Commission's decision that although the bands 1390-1400 and 1427-1432 MHz were transferred for non-Federal exclusive use, Federal hospitals have access to the WMTS bands on a primary basis as end users. See Appendix B for the text of US37.

71. In the *WRC-03 Omnibus R&O*, we inadvertently removed the reference to US74 from the band 1400-1427 MHz in the U.S. Table.[130] Therefore, we take this opportunity to correct this error by reinserting the reference to US74 in the band 1400-1427 MHz.[131] See Appendix B for this correction to the U.S. Table.

---

[128] As discussed above, the revised cross references for the 700 MHz, NPSPAC, and 4.9 GHz bands are shown below in Table 6.

Table 6: Revised 700 MHz, NPSPAC, and 4.9 GHz Bands Cross References in the Allocation Table

Band(s) (MHz)	Current Part 90 Cross Reference	Revised Part 90 Cross Reference
763-775 and 793-805	Private Land Mobile (90R)	Public Safety Land Mobile (90R)
806-809 and 851-854	Private Land Mobile (90)	Public Safety Land Mobile (90S)
4940-4990	Private Land Mobile (90)	Public Safety Land Mobile (90Y)

[129] *See NTIA Manual* at Section 7.5.9.

[130] *See WRC-03 Omnibus R&O* at para. 118, wherein the Commission revised US74 by adding a cross reference to US368 and by using the term "unwanted emissions" in place of "extraband radiation." Although we correctly implemented these revisions to US74 in the Final Rules, we inadvertently removed the reference to US74 from the band 1400-1427 MHz. *See WRC-03 Omnibus R&O*, 20 FCC Rcd at 6613 ¶ 118.

[131] US74 currently reads as follows: In the bands 25.55-25.67, 73.0-74.6, 406.1-410.0, 608-614, 1400-1427 (see US368), 1660.5-1670.0, 2690-2700, and 4990-5000 MHz, and in the bands 10.68-10.7, 15.35-15.4, 23.6-24.0, 31.3-31.5, 86-92, 100-102, 109.5-111.8, 114.25-116, 148.5-151.5, 164-167, 200-209, and 250-252 GHz, the radio astronomy service shall be protected from unwanted emissions only to the extent that such radiation exceeds the

(continued…)

G. Updates to U.S. Table and Domestic Footnotes for SHF Bands (3 to 30 GHz)

1. GOES Footnote

72. Because the band 7190-7235 MHz is allocated for exclusive Federal use, in support of the Department of Commerce's Geostationary Operational Environmental Satellites (GOES), NTIA added a new Federal footnote – G134 – to the *NTIA Manual* in its September 2008 revision.[132] Because Federal footnotes denote stipulations applicable only to Federal operations, and the Federal Table is included in the Allocation Table for informational purposes only, adding G134 to the Federal Table is a non-substantive, editorial action. Therefore, we add G134 to the Federal Table as shown in Appendix B.

2. Ku-Band Fixed-Satellite Service

73. In the United States, the band 11.7-12.2 GHz is allocated to the non-Federal fixed-satellite service (FSS) for space-to-Earth transmissions (downlinks).[133] We observe that NG145 and RR 5.485 contain the exact same text, except that RR 5.485 opens with the phrase "In Region 2,". The Commission's Rules specify that where an international footnote is applicable, without modification, to non-Federal operations, it is placed in the non-Federal Table.[134] Accordingly, we correct the band 11.7-12.2 GHz in the non-Federal Table by replacing NG145 with RR 5.485.

74. We also note that, in the Region 2 Table, RR 5.485 is shown at the bottom of the cell in the bands 11.7-12.1 and 12.1-12.2 GHz. Consistent with the Commission's current display of NG145, however, we place RR 5.485 to the right of the non-Federal FSS downlink allocation because this international footnote provides the licensees of FSS space stations with additional flexibility, but does not provide for a separate allocation, *i.e.*, we would not authorize a space station in the broadcasting-satellite service under this international footnote. Also, consistent with the Region 2 Table, we correct a display error by moving the reference to 5.488 from the bottom of the cell in the band 11.7-12.2 GHz to the right of the non-Federal FSS downlink allocation.

H. Updates to Other Rule Sections

1. Adding Inter-Satellite Service Bands to Part 25

75. In this section, we make a conforming modification to the Commission's Part 25 satellite Rules. On December 19, 2000, the Commission realigned the allocations in the bands 50.2-50.4 and 51.4-71 GHz.[135] As part of this realignment, the Commission provided separate inter-satellite service (ISS) allocations for Federal agencies and for non-Federal (commercial) licensees by allocating the band 65-71 GHz to the non-Federal ISS, deleting the non-Federal ISS allocation from the bands 56.9-57 and

(Continued from previous page)
level which would be present if the offending station were operating in compliance with the technical standards or criteria applicable to the service in which it operates. Radio astronomy observations in these bands are performed at the locations listed in US311. As noted above in n.121, however, as a consequence of our renumbering US311 to US385, we update the cross reference to US311 in US74 to US385. See Appendix B for the revised text of US74.

[132] *See* 2008 *NTIA Manual* at 4-162. *See also* letter from the Associate Administrator, Office of Spectrum Management, NTIA to Chief, OET, received July 21, 2008, advising the Commission of this addition.

[133] The term "Ku-band" is generally used by the satellite industry to refer to spectrum in the 12-18 GHz range. The band 11.7-12.2 GHz (space-to-Earth) is paired with the band 14-14.5 GHz (Earth-to-space).

[134] *See* 47 C.F.R. § 2.105(d)(5)(i).

[135] *See* Amendment of Part 2 of the Commission's Rules to Allocate Spectrum to the Inter-Satellite, Fixed, and Mobile Services and to Permit Unlicensed Devices to Use Certain Segments in the 50.2-50.4 GHz and 51.4-71.0 GHz Bands, ET Docket No. 99-261, *Report and Order*, 15 FCC Rcd 25264 (2001) (*ISS R&O*).

59-64 GHz, and allocating the band 64-65 GHz to the Federal ISS.[136] The remaining ISS allocations in this frequency range (54.25-56.9 and 57-58.2 GHz) are available for both Federal and non-Federal use. We note that the Commission adopted this plan at the request of NTIA,[137] industry commenters supported the plan, and that Sections 25.202(b) and 25.279 of the Commission's Rules already permit the use of these ISS allocations.[138] Accordingly, we add the bands 54.25-56.9, 57-58.2, and 65-71 GHz to the list of available ISS frequencies set forth in Section 25.202(a)(5) to conform to the Commission's 2000 decision. Consequently, we also add a cross reference to these Rules in the FCC Rule Part Cross References portion of the Allocation Table, *i.e.*, "Satellite Communications (25)."

2. Revisions of Parts 1 and 2

76. We revise Sections 1.924(b)(3) and (e)(1), 2.1(c), 2.100, 2.101(b), 2.104(c)(2), and 2.201(b).[139] In addition, we make various other minor revisions to Section 2.106. These revisions are generally for footnote placement, simplification, consistency, or updating purposes.[140] In addition, on January 12, 2010, NTIA informed the Commission that G124 had been deleted from the *NTIA Manual* and requested that the Commission update its Allocation Table to reflect this action.[141] As requested, we remove the reference to G124 from Section 2.106 in this Order. We also correct a typographical error in US378. Specifically, in the middle of the table in US378, above the bottom seven listed locations, we insert the heading "50 km radius of operation centered on:." These revisions are shown in Appendix B. We show updated cross references in the FCC Rule Part Cross References in Table A6 in Appendix A and in the Allocation Table in Appendix B.

IV. ADMINISTRATIVE PROCEDURE ACT REQUIREMENTS

77. We amend Parts 1, 2, 15, 25, 73, and 90 of the Commission's Rules herein by incorporating non-substantive, editorial revisions only. Therefore, there is good cause for not employing the notice and comment procedure in this case, and for making the effective date of these amendments the date of publication in the Federal Register. Specifically, we find that the normal procedures for notice and comment and for publication as required under Section 553 of the Administrative Procedure Act would be impracticable, unnecessary, or contrary to the public interest. *See* 5 U.S.C. § 553(b)(3)(B); *Kessler v. FCC*, 326 F.2d 673 (D.C. Cir. 1963).

---

[136] *Id.* at 25265 ¶ 2. ISS is a radiocommunication service providing links between satellites. *See* 47 C.F.R. § 2.1(c). The Commission observed that the net result of the ISS allocations and deletions was an increase of 0.9 gigahertz of spectrum for commercial ISS and 1 gigahertz of spectrum for Federal ISS. *See ISS R&O*, 15 FCC Rcd 25265 ¶ 3.

[137] *See* letter from Acting Associate Administrator, Office of Spectrum Management, NTIA to Chief, OET, dated May 18, 1998.

[138] *See* 47 C.F.R. §§ 25.202(b), 25.279.

[139] Section 1.924(b)(3) is revised to update the contact information for the Table Mountain Quiet Zone. Section 1.924(e)(1) is revised to correct a typographical error in the longitude coordinates on the West side of the Denver, CO Area Rectangle 3. *See* Review of Quiet Zones Application Procedures, WT Docket No. 01-319, 19 FCC Rcd 3267 (2004) (*Quiet Zone R&O*). Section 2.1(c) is revised to update the definition for the term "occupied bandwidth." Section 2.100 is revised to note that the International Table is being updated to reflect the 2008 Edition of the ITU *Radio Regulations*. Section 2.104(c)(2) is revised to update the definition of the European Broadcasting Area. Section 2.201(b) is revised to comport with the ITU *Radio Regulations*. *See* ITU *Radio Regulations* Appendix 1 (Rev.WRC-07) § 5.

[140] In US117(a)(3), we also update the contact information for the Table Mountain Quiet Zone.

[141] *See* letter from Associate Administrator, Office of Spectrum Management, NTIA, to Chief, OET, dated January 12, 2010.

V. ORDERING CLAUSE

78. IT IS ORDERED that Parts 1, 2, 15, 25, 73, and 90 of the Commission's Rules, 47 C.F.R. Parts 1, 2, 15, 25, 73, and 90, ARE AMENDED as set forth in the Appendix B, effective upon publication in the Federal Register. This action is taken pursuant to authority found in Sections 4(i) and 303 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i) and 303, and in Sections 0.11, 0.31, 0.231(b) and 0.241 of the Commission's Rules, 47 C.F.R. §§ 0.11, 0.31, 0.231(b) and 0.241.

FEDERAL COMMUNICATIONS COMMISSION

____

Julius P. Knapp
Chief, Office of Engineering and Technology

____

Steven VanRoekel
Managing Director

APPENDIX A

Updates to HF/VHF Bands and FCC Rule Part Cross References

Table A1: Grandfathered Non-Federal Use of the HF NIB Bands[1]

Band (MHz)	Call Signs by Radio Service	Assigned Frequency (MHz)	Call Sign	Station Class	Bandwidth
5.9-5.95	2 MC	2 coast stations in the Coastal Group (MC) Radio Service:			
		5.9	WLC	FC (Public)	2.8 kHz
		5.9486	KXC713	FCL (Private)	300 Hz
7.3-7.4	128 IG 6 MC	6 coast stations:			
		7.3014	WPXY244	FCL	300 Hz
		7.318, 7.321	KFS	FC	2.8 kHz
		7.3275, 7.3289	WGM		
		7.35, 7.3514, 7.39, 7.3914	WHX		
		7.355, 7.38	WQAB964	FCL	
		7.398	WLO	FC	
		128 call signs for the IG (Industrial Business Pool, Conventional) Radio Service, which are listed by station class: 53 FX (Fixed), 6 FX1 (Control), 3 FXC (Fixed - Interconnect), 8 FXI (Fixed - Itinerant), 10 FXT (Fixed - Temporary), 29 FXO (Operational Fixed), 14 FXOT (Operational Fixed - Temporary), 10 FB (Base), 1 FBI (Base - Itinerant), and 27 MO (Mobile).			
9.4-9.5	51 IG	9.04-9.5	WNQM840	FX (4 units)	3.6 kHz
		In the sub-band 9.4884-9.5 MHz, 50 additional call signs authorize the use of 3 frequencies: 1) 9.4899 MHz: (2 FB call signs); 2) 9.497 MHz (1 FX call sign); and 3) 9.4974 MHz: 47 call signs; most authorize FS use [28 FX, 6 FX1, 7 FXO, and 5 FXOT], but 11 of these call signs authorize stations in the LMS [3 FB, 7 MO (mobile), and 1 MOI (Mobile - Itinerant)].			
9.775-9.9	0	Non-Federal FS allocation was previously deleted.			
11.6-11.65	4 IG	11.4-11.65	WNQM840	FX (4 units)	3.6 kHz
		11.642	WPHI868, WPHJ657, WPHJ960	FXO (16 units)	1.4 kHz
	4 MK	4 Alaska private-fixed stations in the Alaska Group (MK) Radio Service operate on the assigned frequency 11.6029 MHz (carrier frequency 11.6015 MHz).			2.8 kHz
11.65-11.7 11.975-12.05	0	Non-Federal FS allocations were previously deleted.			
12.050-12.1	1 IG	12.0514	WPPF772	FXO (9 units)	2.8 kHz
13.57-13.6	1 MC	13.585, 13.5864	WGM	FC	
13.8-13.87		13.865, 13.8664			
15.6-15.8	64 IG, 1 PW	IG and PW call signs by station class: 43 FX, 6 FX1, 3 FXC, 6 FXI, 9 FXO, 5 FXOT, 3 FB, 1 FBI, 20 MO, and 2 MOI			
17.48-17.55	0	Non-Federal FS allocation was previously deleted.			
18.9-19.02	1 MC	18.9105 & 18.9114	WGM	FC	2.8 kHz

[1] We conducted this ULS search, restricted to active status and regular authorizations, on May 10, 2010.

Table A2: 7 MHz Realignment

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
6.765-7 FIXED MOBILE except aeronautical mobile (R) 5.138			6.765-7 FIXED US22 MOBILE except aeronautical mobile (R) 5.138 US340		ISM Equipment (18) Private Land Mobile (90)
7-7.1 AMATEUR AMATEUR-SATELLITE 5.140 5.141 5.141A			7-7.2	7-7.1 AMATEUR AMATEUR-SATELLITE US340	Amateur Radio (97)
7.1-7.2 AMATEUR 5.142 5.141A 5.141B			US340	7.1-7.2 AMATEUR US340	
7.2-7.3 BROADCASTING	7.2-7.3 AMATEUR 5.142	7.2-7.3 BROADCASTING	7.2-7.3 US142 US340	7.2-7.3 AMATEUR US142 US340	International Broadcast Stations (73F) Amateur Radio (97)
7.3-7.4 BROADCASTING 5.134 5.143 5.143A 5.143B 5.143C 5.143D			7.3-7.4 BROADCASTING 5.134 US136 US340		International Broadcast Stations (73F) Maritime (80) Private Land Mobile (90)
7.4-7.45 BROADCASTING 5.143B 5.143C	7.4-7.45 FIXED MOBILE except aeronautical mobile (R)	7.4-7.45 BROADCASTING 5.143A 5.143C	7.4-7.45 FIXED MOBILE except aeronautical mobile (R) US142 US340		
7.45-8.1 FIXED MOBILE except aeronautical mobile (R) 5.144			7.45-8.1 FIXED US22 MOBILE except aeronautical mobile (R) US340		Maritime (80) Aviation (87) Private Land Mobile (90)

Table A3: Merging 14 HFBC Bands into 6 Bands

International Table (MHz)	Current U.S. Table (kHz)	Revised U.S. Table (MHz)	FCC Rule Part(s)
5.9-5.95 BROADCASTING 5.134 5.136	5900-5950 BROADCASTING 5.134 US340 US366	5.9-6.2 BROADCASTING 5.134 US136 US340	International Broadcast Stations (73F)
5.95-6.2 BROADCASTING	5950-6200 BROADCASTING US340		
9.4-9.5 BROADCASTING 5.134 5.146	9400-9500 BROADCASTING 5.134 US340 US366	9.4-9.9 BROADCASTING 5.134 US136 US340	International Broadcast Stations (73F)
9.5-9.9 BROADCASTING 5.147	9500-9900 BROADCASTING US340 US367		
11.6-11.65 BROADCASTING 5.134 5.146	11600-11650 BROADCASTING 5.134 US340 US366	11.6-12.1 BROADCASTING 5.134 US136 US340	International Broadcast Stations (73F)
11.65-12.05 BROADCASTING 5.147	11650-12050 BROADCASTING US340 US367		
12.05-12.1 BROADCASTING 5.134 5.146	12050-12100 BROADCASTING 5.134 US340 US366		
13.57-13.6 BROADCASTING 5.134 5.151	13570-13600 BROADCASTING 5.134 US340 US366	13.57-13.87 BROADCASTING 5.134 US136 US340	International Broadcast Stations (73F)
13.6-13.8 BROADCASTING	13600-13800 BROADCASTING US340		
13.8-13.87 BROADCASTING 5.134 5.151	13800-13870 BROADCASTING 5.134 US340 US366		
15.1-15.6 BROADCASTING	15100-15600 BROADCASTING US340	15.1-15.8 BROADCASTING 5.134 US136 US340	International Broadcast Stations (73F)
15.6-15.8 BROADCASTING 5.134 5.146	15600-15800 BROADCASTING 5.134 US340 US366		
17.48-17.55 BROADCASTING 5.134 5.146	17480-17550 BROADCASTING 5.134 US340 US366	17.48-17.9 BROADCASTING 5.134 US136 US340	International Broadcast Stations (73F)
17.55-17.9 BROADCASTING	17550-17900 BROADCASTING US340		

Table A4: VHF Maritime Mobile Bands (MHz) (Summary)

Current U.S. Table		Revised U.S. Table		Maritime Frequencies
Federal Table	Non-Federal Table	Federal Table	Non-Federal Table	Channel: Frequency
156.2475-157.0375 5.226 5.227 US77 US106 US107 US266	156.2475-157.0375 MARITIME MOBILE US77 US106 US107 NG117 5.226 5.227 US266 NG124	156.2475-156.7625 US77 US106 US226 US266	156.2475-156.7625 MARITIME MOBILE US106 US226 NG117 US77 US266 NG124	*US77:* 05: 156.250 – VTS 06: 156.300 – IS 67: 156.375 – Nav *DSC:* 70: 156.525 *US77:* 11: 156.550 – VTS 12: 156.600 – PO/VTS 13: 156.650 – Nav 14: 156.700 – PO/VTS *US106:* 15: 156.750
		156.7625-156.8375 MARITIME MOBILE (distress, urgency, safety and calling) 5.226 US266		*Distress:* 16: 156.800
		156.8375-157.0375 5.226 US77 US266	156.8375-157.0375 MARITIME MOBILE 5.226 US77 US266	17: 156.850 77: 156.875 18: 156.900 78: 156.925 19: 156.950 79: 156.975 *US77:* 20: 157.000 – PO
161.625-161.775	161.625-161.775 LAND MOBILE NG6 5.226	161.625-161.9625 US266	161.625-161.775 LAND MOBILE NG6 5.226	*Coast Station Transmit* 24: 161.800 84: 161.825 25: 161.850 85: 161.875 26: 161.900 86: 161.925 27: 161.950
161.775-162.0125 5.226 US266 US399	161.775-162.0125 MOBILE except aeronautical mobile US266 NG6 5.226 US399		161.775-161.9625 MOBILE except aeronautical mobile US266 NG6 5.226	
		161.9625-161.9875 MARITIME MOBILE (AIS) US228		*AIS 1* 87: 161.975
		161.9875-162.0125	161.9875-162.0125 MOBILE except aeronautical mobile 5.226	*Coast Station Transmit* 28: 162.000
162.0125-173.2 FIXED US13 MOBILE 5.226 US8 US11 US216 US300 US312 US399 G5	162.0125-173.2 5.226 US8 US11 US13 US216 US300 US312 US399	162.0125-162.0375 MARITIME MOBILE (AIS) US228		*AIS 2* 88: 162.025
		162.0375-173.2 FIXED MOBILE US8 US11 US13 US73 US300 US312 G5	162.0375-173.2 US8 US11 US13 US73 US300 US312	

US77 codes:
IS: Intership
Nav: Navigational bridge-to-bridge and navigational communications
PO: Port Operations
VTS: Vessel Traffic Services

Table A5: VHF Fixed and Land Mobile Bands (MHz)

Current U.S. Table		Revised U.S. Table		Revised FCC Rule Part(s)
Federal Table	Non-Federal Table	Federal Table	Non-Federal Table	
216-217 Fixed Land mobile Radiolocation 5.241 G2 US210 US229	216-219 FIXED MOBILE except aeronautical Mobile US210 US229 NG173	216-217 Fixed Land mobile US210 US241 G2	216-219 FIXED MOBILE except aeronautical mobile US210 US241 NG173	Maritime (80) Private Land Mobile (90) Personal Radio (95)
217-220 Fixed Mobile US210 US229	219-220 FIXED MOBILE except aeronautical mobile Amateur NG152 US210 US229 NG173	217-220 Fixed Mobile US210 US241	219-220 FIXED MOBILE except aeronautical mobile Amateur NG152 US210 US241 NG173	Maritime (80) Private Land Mobile (90) Amateur Radio (97)
220-222 FIXED LAND MOBILE Radiolocation 5.241 G2 US335	220-222 FIXED LAND MOBILE US335	220-222 FIXED LAND MOBILE US241 US242		Private Land Mobile (90)
222-225 Radiolocation 5.241 G2	222-225 AMATEUR	222-225	222-225 AMATEUR	Amateur Radio (97)

Table A6: FCC Rule Part Cross References

Band(s)	Effect on Rule Part Cross References	Rule/Reason
Bands in kHz:		
110-130	Deleted "Maritime (80)."	
190-285	Merged the bands 190-275 kHz and 275-285 kHz.	List "Aviation (87)" only once.
535-1605	Deleted "Alaska Fixed (80)."	Part 80 use is limited to the band 1615-1715 kHz; *see* §§ 2.106 US299, 80.373(i), 80.387(b).
1705-1800	Replaced "Maritime (80)" with "Alaska Fixed (80)."	
2000-2065	Added "Private Land Mobile (90)."	§§ 80.371(a), 90.20(c)(3), and 90.20(d)(75).
Bands in MHz:		
5.005-5.06	Deleted "Maritime (80)."	
7.4-7.45	Deleted "Aviation (87)."	
157.0375-157.1875	Deleted "Private Land Mobile (90)."	
406-406.1	Replaced "Maritime (80)" and "Aviation (87)" with "Maritime (EPIRBs) (80V)" and "Aviation (ELTs) (87F)."	Highlights certain uses of the band 406-406.1 MHz.
698-763 775-793 805-806	Revised "LPTV, TV Translator/Booster (74G)" to read "LPTV and TV Translator (74G)."	Booster stations no longer authorized in these bands; *see* § 74.702(c).
698-763 775-793	Deleted "Broadcast Radio (TV)(73)."	Use of these bands no longer governed by Part 73; *see* § 27.2(a).
763-775 793-805	Deleted "LPTV, TV Translator/Booster (74G)."	The 700 MHz Public Safety Bands are not allocated to the broadcasting service, and thus, new LPTV and TV translator stations should not be licensed in these bands.
5000-5030 5030-5150	Expanded the band 5000-5030 MHz with its cross reference to "Aviation (87)" to 5000-5091 MHz, thus reducing the band 5030-5150 MHz with its cross reference to "Satellite Communications (25) and Aviation (87)" to 5091-5150 MHz.	
Band in GHz:		
76-77	Deleted "Amateur (97)."	Amateur use suspended; *see* § 97.303(r)(1).

APPENDIX B

Final Rules

For the reasons discussed in the preamble, the Federal Communications Commission amends 47 C.F.R. parts 1, 2, 15, 25, 73, and 90 as follows:

PART 1 – PRACTICE AND PROCEDURE

1. The authority citation for part 1 continues to read as follows:

AUTHORITY: 15 U.S.C. 79 *et seq.*; 47 U.S.C. 151, 154(i), 154(j), 155, 157, 225, 303(r), and 309.

2. Section 1.924 is amended by revising paragraph (b)(3) and by revising the last entry under Rectangle 3 in the Denver, CO Area in paragraph (e)(1) to read as follows:

§ 1.924 Quiet zones.

* * * * *

(b) * * *

(3) Applicants concerned are urged to communicate with the Radio Frequency Manager, Department of Commerce, 325 Broadway, Boulder, CO 80305; Telephone: 303-497-4619, Fax: 303-497-6982, E-mail: frequencymanager@its.bldrdoc.gov, in advance of filing their applications with the Commission.

* * * * *

(e) * * *

(1) * * *

DENVER, CO AREA

* * *

Rectangle 3:

* * *

* * *

* * *

107° 15' 00" W. Long. on the west

PART 2 – FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS

3. The authority citation for part 2 continues to read as follows:

AUTHORITY: 47 U.S.C. 154, 302a, 303, and 336, unless otherwise noted.

4. Paragraph (c) of Section 2.1 is amended by revising the definition of occupied bandwidth to read as follows:

§ 2.1 Terms and definitions.

* * * * *

(c) * * *

* * * * *

Occupied Bandwidth. The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage β/2 of the total mean power of a given emission.

NOTE: Unless otherwise specified in an ITU-R Recommendation for the appropriate class of emission, the value of β/2 should be taken as 0.5%. (RR)

* * * * *

5. Section 2.100 is amended to read as follows:

§ 2.100 International regulations in force.

The ITU Radio Regulations, Edition of 2004, have been incorporated to the extent practicable in Subparts A and B of this part, except that the International Table within § 2.106 has been updated to reflect the ITU Radio Regulations, Edition of 2008.

6. Section 2.101 is amended by adding note 1 to the end of the sentence in paragraph (b).

§ 2.101 Frequency and wavelength bands.

* * * * *

(b) However, where adherence to these provisions would introduce serious difficulties, for example in connection with the notification and registration of frequencies, the lists of frequencies and related matters, reasonable departures may be made.[1]

* * * * *

7. Section 2.104 is amended by revising paragraph (c)(2) to read as follows:

§ 2.104 International Table of Frequency Allocations.

* * * * *

(c) * * *

(2) The "European Broadcasting Area" is bounded on the west by the western boundary of Region 1, on the east by the meridian 40° East of Greenwich and on the south by the parallel 30° North so as to include the northern part of Saudi Arabia and that part of those countries bordering the Mediterranean within these limits. In addition, Armenia, Azerbaijan, Georgia and those parts of the territories of Iraq, Jordan, Syrian Arab Republic, Turkey and Ukraine lying outside the above limits are included in the European Broadcasting Area.

* * * * *

[1] In the application of the ITU Radio Regulations, the Radiocommunication Bureau uses the following units:
kHz: for frequencies up to 28 000 kHz inclusive;
MHz: for frequencies above 28 000 kHz up to 10 500 MHz inclusive; and
GHz: for frequencies above 10 500 MHz.

8. Section 2.105 is amended by revising paragraphs (d)(5)(i), (ii), (iii), and (iv) to read as follows:

§ 2.105 United States Table of Frequency Allocations.

* * * * *

(d)(5)(i) Any footnote number consisting of "5." followed by one or more digits,[7] * * *

(ii) Any footnote consisting of the letters "US" followed by one or more digits,[7] * * *

(iii) Any footnote consisting of the letters "NG" followed by one or more digits,[7] * * *

(iv) Any footnote consisting of the letters "G" followed by one or more digits,[7] * * *

* * * * *

9. Section 2.106, the Table of Frequency Allocations, is amended as follows:

a. All pages are revised.

b. The list of International Footnotes is reissued.

c. In the list of United States (US) Footnotes, footnotes US2, US22, US37, US73, US136, US142, US228, US241, US242, US270, US385, US444, US444A, and US519 are added; footnotes US74, US117, US226, US269, US298, and US378 are revised; and footnotes US7, US107, US216, US217, US229, US294, US311, US335, US351, US352, US366, US367, US394, US395, US396, and US399 are removed.

d. In the list of Non-Federal Government (NG) Footnotes, footnotes NG5, NG7, and NG14 are added; and footnotes NG19, NG128, NG135, NG142, and NG145 are removed.

e. In the list of Federal Government (G) Footnotes, footnote G134 is added; footnote G2 is revised; and footnote G124 is removed.

§ 2.106 Table of Frequency Allocations.

The revisions and additions read as follows:

[7] In some cases, a letter, or letters, may be appended to the digit(s) of a footnote number in order to preserve the sequential order.

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
Below 9 (Not Allocated) 5.53 5.54			Below 9 (Not Allocated) 5.53 5.54		
9-14 RADIONAVIGATION			9-14 RADIONAVIGATION US18 US2		
14-19.95 FIXED MARITIME MOBILE 5.57 5.55 5.56			14-19.95 FIXED MARITIME MOBILE 5.57 US2	14-19.95 Fixed US2	
19.95-20.05 STANDARD FREQUENCY AND TIME SIGNAL (20 kHz)			19.95-20.05 STANDARD FREQUENCY AND TIME SIGNAL (20 kHz) US2		
20.05-70 FIXED MARITIME MOBILE 5.57 5.56 5.58			20.05-59 FIXED MARITIME MOBILE 5.57 US2	20.05-59 FIXED US2	
			59-61 STANDARD FREQUENCY AND TIME SIGNAL (60 kHz) US2		
			61-70 FIXED MARITIME MOBILE 5.57 US2	61-70 FIXED US2	
70-72 RADIONAVIGATION 5.60	70-90 FIXED MARITIME MOBILE 5.57 MARITIME RADIONAVIGATION 5.60 Radiolocation 5.61	70-72 RADIONAVIGATION 5.60 Fixed Maritime mobile 5.57 5.59	70-90 FIXED MARITIME MOBILE 5.57 Radiolocation US2	70-90 FIXED Radiolocation US2	Private Land Mobile (90)
72-84 FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.60 5.56		72-84 FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.60			
84-86 RADIONAVIGATION 5.60		84-86 RADIONAVIGATION 5.60 Fixed Maritime mobile 5.57 5.59			
86-90 FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.56		86-90 FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.60			

90-110 RADIONAVIGATION 5.62 Fixed 5.64			90-110 RADIONAVIGATION 5.62 US18 US2 US104	Aviation (87) Private Land Mobile (90)
110-112 FIXED MARITIME MOBILE RADIONAVIGATION 5.64	110-130 FIXED MARITIME MOBILE MARITIME RADIONAVIGATION 5.60 Radiolocation 5.61 5.64	110-112 FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64	110-130 FIXED MARITIME MOBILE Radiolocation 5.64 US2	Private Land Mobile (90)
112-115 RADIONAVIGATION 5.60		112-117.6 RADIONAVIGATION 5.60 Fixed Maritime mobile 5.64 5.65		
115-117.6 RADIONAVIGATION 5.60 Fixed Maritime mobile 5.64 5.66				
117.6-126 FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64		117.6-126 FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64		
126-129 RADIONAVIGATION 5.60		126-129 RADIONAVIGATION 5.60 Fixed Maritime mobile 5.64 5.65		
129-130 FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64		129-130 FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64		
130-135.7 FIXED MARITIME MOBILE 5.64 5.67	130-135.7 FIXED MARITIME MOBILE 5.64	130-135.7 FIXED MARITIME MOBILE RADIONAVIGATION 5.64	130-160 FIXED MARITIME MOBILE 5.64 US2	Maritime (80)
135.7-137.8 FIXED MARITIME MOBILE Amateur 5.67A 5.64 5.67 5.67B	135.7-137.8 FIXED MARITIME MOBILE Amateur 5.67A 5.64	135.7-137.8 FIXED MARITIME MOBILE RADIONAVIGATION Amateur 5.67A 5.64 5.67B		
137.8-148.5 FIXED MARITIME MOBILE 5.64 5.67	137.8-160 FIXED MARITIME MOBILE 5.64	137.8-160 FIXED MARITIME MOBILE RADIONAVIGATION 5.64		
148.5-255 BROADCASTING 5.68 5.69 5.70				

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
(See previous page)	160-190 FIXED	160-190 FIXED Aeronautical radionavigation	160-190 FIXED MARITIME MOBIILE US2	160-190 FIXED US2	
	190-200 AERONAUTICAL RADIONAVIGATION		190-200 AERONAUTICAL RADIONAVIGATION US18 US2		Aviation (87)
255-283.5 BROADCASTING AERONAUTICAL RADIONAVIGATION 5.70 5.71	200-275 AERONAUTICAL RADIONAVIGATION Aeronautical mobile	200-285 AERONAUTICAL RADIONAVIGATION Aeronautical mobile	200-275 AERONAUTICAL RADIONAVIGATION US18 Aeronautical mobile US2		
283.5-315 AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73	275-285 AERONAUTICAL RADIONAVIGATION Aeronautical mobile Maritime radionavigation (radiobeacons)		275-285 AERONAUTICAL RADIONAVIGATION Aeronautical mobile Maritime radionavigation (radiobeacons) US2 US18		
5.72 5.74	285-315 AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73		285-325 MARITIME RADIONAVIGATION (radiobeacons) 5.73 Aeronautical radionavigation (radiobeacons)		
315-325 AERONAUTICAL RADIONAVIGATION Maritime radionavigation (radiobeacons) 5.73 5.72 5.75	315-325 MARITIME RADIONAVIGATION (radiobeacons) 5.73 Aeronautical radionavigation	315-325 AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73	US2 US18 US364		
325-405 AERONAUTICAL RADIONAVIGATION	325-335 AERONAUTICAL RADIONAVIGATION Aeronautical mobile Maritime radionavigation (radiobeacons)	325-405 AERONAUTICAL RADIONAVIGATION Aeronautical mobile	325-335 AERONAUTICAL RADIONAVIGATION (radiobeacons) Aeronautical mobile Maritime radionavigation (radiobeacons) US2 US18		Aviation (87)
5.72	335-405 AERONAUTICAL RADIONAVIGATION Aeronautical mobile		335-405 AERONAUTICAL RADIONAVIGATION (radiobeacons) US18 Aeronautical mobile US2		
405-415 RADIONAVIGATION 5.76 5.72	405-415 RADIONAVIGATION 5.76 Aeronautical mobile		405-415 RADIONAVIGATION 5.76 US18 Aeronautical mobile US2		Maritime (80) Aviation (87)

415-435 MARITIME MOBILE 5.79 AERONAUTICAL RADIONAVIGATION 5.72	415-495 MARITIME MOBILE 5.79 5.79A Aeronautical radionavigation 5.80 5.77 5.78 5.82		415-435 MARITIME MOBILE 5.79 AERONAUTICAL RADIONAVIGATION US2		
435-495 MARITIME MOBILE 5.79 5.79A Aeronautical radionavigation 5.72 5.82			435-495 MARITIME MOBILE 5.79 5.79A Aeronautical radionavigation 5.82 US2 US231	435-495 MARITIME MOBILE 5.79 5.79A 5.82 US2 US231	
495-505 MOBILE 5.82A 5.82B			495-505 MOBILE (distress and calling)		
505-526.5 MARITIME MOBILE 5.79 5.79A 5.84 AERONAUTICAL RADIONAVIGATION 5.72	505-510 MARITIME MOBILE 5.79	505-526.5 MARITIME MOBILE 5.79 5.79A 5.84 AERONAUTICAL RADIONAVIGATION Aeronautical mobile Land mobile	505-510 MARITIME MOBILE 5.79		Maritime (80)
	510-525 MOBILE 5.79A 5.84 AERONAUTICAL RADIONAVIGATION		510-525 MARITIME MOBILE (ships only) 5.79A 5.84 AERONAUTICAL RADIONAVIGATION (radiobeacons) US18 US14 US225		Maritime (80) Aviation (87)
526.5-1606.5 BROADCASTING 5.87 5.87A	525-535 BROADCASTING 5.86 AERONAUTICAL RADIONAVIGATION	526.5-535 BROADCASTING Mobile 5.88	525-535 MOBILE US221 AERONAUTICAL RADIONAVIGATION (radiobeacons) US18 US239		Aviation (87) Private Land Mobile (90)
	535-1605 BROADCASTING	535-1606.5 BROADCASTING	535-1605	535-1605 BROADCASTING NG1 NG5	Radio Broadcast (AM)(73) Private Land Mobile (90)
1606.5-1625 FIXED MARITIME MOBILE 5.90 LAND MOBILE 5.92	1605-1625 BROADCASTING 5.89 5.90	1606.5-1800 FIXED MOBILE RADIOLOCATION RADIONAVIGATION 5.91	1605-1615 MOBILE US221 G127 1615-1705 US299	1605-1705 BROADCASTING 5.89 US299 NG1 NG5	Radio Broadcast (AM)(73) Alaska Fixed (80) Private Land Mobile (90)
1625-1635 RADIOLOCATION 5.93	1625-1705 FIXED MOBILE BROADCASTING 5.89 Radiolocation 5.90				
1635-1800 FIXED MARITIME MOBILE 5.90 LAND MOBILE 5.92 5.96	1705-1800 FIXED MOBILE RADIOLOCATION AERONAUTICAL RADIONAVIGATION		1705-1800 FIXED MOBILE RADIOLOCATION US240		Alaska Fixed (80) Private Land Mobile (90)

<table>
<tr><th colspan="3">International Table</th><th colspan="2">United States Table</th><th rowspan="2">FCC Rule Part(s)</th></tr>
<tr><th>Region 1 Table</th><th>Region 2 Table</th><th>Region 3 Table</th><th>Federal Table</th><th>Non-Federal Table</th></tr>
<tr><td>1800-1810
RADIOLOCATION

5.93</td><td rowspan="2">1800-1850
AMATEUR</td><td rowspan="3">1800-2000
AMATEUR
FIXED
MOBILE except aeronautical mobile
RADIONAVIGATION
Radiolocation

5.97</td><td rowspan="2">1800-1900</td><td rowspan="2">1800-1900
AMATEUR</td><td rowspan="2">Amateur Radio (97)</td></tr>
<tr><td>1810-1850
AMATEUR

5.98 5.99 5.100 5.101</td></tr>
<tr><td>1850-2000
FIXED
MOBILE except aeronautical mobile

5.92 5.96 5.103</td><td>1850-2000
AMATEUR
FIXED
MOBILE except aeronautical mobile
RADIOLOCATION
RADIONAVIGATION

5.102</td><td colspan="2">1900-2000
RADIOLOCATION

US290</td><td>Private Land Mobile (90)
Amateur Radio (97)</td></tr>
<tr><td>2000-2025
FIXED
MOBILE except aeronautical mobile (R)

5.92 5.103</td><td colspan="2" rowspan="2">2000-2065
FIXED
MOBILE</td><td rowspan="2">2000-2065
FIXED
MOBILE

US340</td><td rowspan="2">2000-2065
MARITIME MOBILE

US340 NG7</td><td rowspan="2">Maritime (80)
Private Land Mobile (90)</td></tr>
<tr><td>2025-2045
FIXED
MOBILE except aeronautical mobile (R)
Meteorological aids 5.104

5.92 5.103</td></tr>
<tr><td rowspan="2">2045-2160
FIXED
MARITIME MOBILE
LAND MOBILE

5.92</td><td colspan="2">2065-2107
MARITIME MOBILE 5.105

5.106</td><td colspan="2">2065-2107
MARITIME MOBILE 5.105

US296 US340</td><td>Maritime (80)</td></tr>
<tr><td colspan="2" rowspan="2">2107-2170
FIXED
MOBILE</td><td rowspan="2">2107-2170
FIXED
MOBILE

US340</td><td rowspan="2">2107-2170
FIXED
MOBILE except aeronautical mobile

US340 NG7</td><td rowspan="2">Maritime (80)
Private Land Mobile (90)</td></tr>
<tr><td>2160-2170
RADIOLOCATION

5.93 5.107</td></tr>
<tr><td colspan="3">2170-2173.5
MARITIME MOBILE</td><td>2170-2173.5
MARITIME MOBILE (telephony)

US340</td><td>2170-2173.5
MARITIME MOBILE

US340</td><td>Maritime (80)</td></tr>
</table>

2173.5-2190.5 MOBILE (distress and calling) 5.108 5.109 5.110 5.111		2173.5-2190.5 MOBILE (distress and calling) 5.108 5.109 5.110 5.111 US279 US340		Maritime (80) Aviation (87)
2190.5-2194 MARITIME MOBILE		2190.5-2194 MARITIME MOBILE (telephony) US340	2190.5-2194 MARITIME MOBILE US340	Maritime (80)
2194-2300 FIXED MOBILE except aeronautical mobile (R) 5.92 5.103 5.112	2194-2300 FIXED MOBILE 5.112	2194-2495 FIXED MOBILE US22 US340	2194-2495 FIXED MOBILE except aeronautical mobile US22 US340 NG7	Maritime (80) Private Land Mobile (90)
2300-2498 FIXED MOBILE except aeronautical mobile (R) BROADCASTING 5.113 5.103	2300-2495 FIXED MOBILE BROADCASTING 5.113			
2498-2501 STANDARD FREQUENCY AND TIME SIGNAL (2500 kHz)	2495-2501 STANDARD FREQUENCY AND TIME SIGNAL (2500 kHz)	2495-2505 STANDARD FREQUENCY AND TIME SIGNAL (2500 kHz) US1 US340		
2501-2502 STANDARD FREQUENCY AND TIME SIGNAL Space research				
2502-2625 FIXED MOBILE except aeronautical mobile (R) 5.92 5.103 5.114	2502-2505 STANDARD FREQUENCY AND TIME SIGNAL			
2625-2650 MARITIME MOBILE MARITIME RADIONAVIGATION 5.92	2505-2850 FIXED MOBILE	2505-2850 FIXED MOBILE US285 US22 US340	2505-2850 FIXED MOBILE except aeronautical mobile US285 US22 US340	Maritime (80) Aviation (87) Private Land Mobile (90)
2650-2850 FIXED MOBILE except aeronautical mobile (R) 5.92 5.103				
2850-3025 AERONAUTICAL MOBILE (R) 5.111 5.115		2850-3025 AERONAUTICAL MOBILE (R) 5.111 5.115 US283 US340		Aviation (87) Page 6

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
3.025-3.155 AERONAUTICAL MOBILE (OR)			3.025-3.155 AERONAUTICAL MOBILE (OR) US340		
3.155-3.2 FIXED MOBILE except aeronautical mobile (R) 5.116 5.117			3.155-3.23 FIXED MOBILE except aeronautical mobile (R) US22 US340		Maritime (80) Private Land Mobile (90)
3.2-3.23 FIXED MOBILE except aeronautical mobile (R) BROADCASTING 5.113 5.116					
3.23-3.4 FIXED MOBILE except aeronautical mobile BROADCASTING 5.113 5.116 5.118			3.23-3.4 FIXED MOBILE except aeronautical mobile Radiolocation US340		Maritime (80) Aviation (87) Private Land Mobile (90)
3.4-3.5 AERONAUTICAL MOBILE (R)			3.4-3.5 AERONAUTICAL MOBILE (R) US283 US340		Aviation (87)
3.5-3.8 AMATEUR FIXED MOBILE except aeronautical mobile 5.92	3.5-3.75 AMATEUR 5.119	3.5-3.9 AMATEUR FIXED MOBILE	3.5-4 US340	3.5-4 AMATEUR US340	Amateur Radio (97)
3.8-3.9 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	3.75-4 AMATEUR FIXED MOBILE except aeronautical mobile (R) 5.122 5.125				
3.9-3.95 AERONAUTICAL MOBILE (OR) 5.123		3.9-3.95 AERONAUTICAL MOBILE BROADCASTING			
3.95-4 FIXED BROADCASTING		3.95-4 FIXED BROADCASTING 5.126			
4-4.063 FIXED MARITIME MOBILE 5.127 5.126			4-4.063 FIXED MARITIME MOBILE US340		Maritime (80)

4.063-4.438 MARITIME MOBILE 5.79A 5.109 5.110 5.130 5.131 5.132 5.128			4.063-4.438 MARITIME MOBILE 5.79A 5.109 5.110 5.130 5.131 5.132 US82 US296 US340		Maritime (80) Aviation (87)
4.438-4.65 FIXED MOBILE except aeronautical mobile (R)		4.438-4.65 FIXED MOBILE except aeronautical mobile	4.438-4.65 FIXED MOBILE except aeronautical mobile (R) US22 US340		Maritime (80) Aviation (87) Private Land Mobile (90)
4.65-4.7 AERONAUTICAL MOBILE (R)			4.65-4.7 AERONAUTICAL MOBILE (R) US282 US283 US340		Aviation (87)
4.7-4.75 AERONAUTICAL MOBILE (OR)			4.7-4.75 AERONAUTICAL MOBILE (OR) US340		
4.75-4.85 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE BROADCASTING 5.113	4.75-4.85 FIXED MOBILE except aeronautical mobile (R) BROADCASTING 5.113	4.75-4.85 FIXED BROADCASTING 5.113 Land mobile	4.75-4.85 FIXED MOBILE except aeronautical mobile (R) US340		Maritime (80) Private Land Mobile (90)
4.85-4.995 FIXED LAND MOBILE BROADCASTING 5.113			4.85-4.995 FIXED MOBILE US340	4.85-4.995 FIXED US340	Aviation (87) Private Land Mobile (90)
4.995-5.003 STANDARD FREQUENCY AND TIME SIGNAL (5 MHz)			4.995-5.005 STANDARD FREQUENCY AND TIME SIGNAL (5 MHz) US1 US340		
5.003-5.005 STANDARD FREQUENCY AND TIME SIGNAL Space research					
5.005-5.06 FIXED BROADCASTING 5.113			5.005-5.06 FIXED US22 US340		Aviation (87) Private Land Mobile (90)
5.06-5.25 FIXED Mobile except aeronautical mobile 5.133			5.06-5.45 FIXED US22 Mobile except aeronautical mobile US212 US340 US381		Maritime (80) Aviation (87) Private Land Mobile (90) Amateur Radio (97)
5.25-5.45 FIXED MOBILE except aeronautical mobile					
5.45-5.48 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	5.45-5.48 AERONAUTICAL MOBILE (R)	5.45-5.48 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	5.45-5.68 AERONAUTICAL MOBILE (R) 5.111 5.115 US283 US340		Aviation (87)
5.48-5.68 AERONAUTICAL MOBILE (R) 5.111 5.115					

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
5.68-5.73 AERONAUTICAL MOBILE (OR) 5.111 5.115			5.68-5.73 AERONAUTICAL MOBILE (OR) 5.111 5.115 US340		
5.73-5.9 FIXED LAND MOBILE	5.73-5.9 FIXED MOBILE except aeronautical mobile (R)	5.73-5.9 FIXED Mobile except aeronautical mobile (R)	5.73-5.9 FIXED MOBILE except aeronautical mobile (R) US340		Maritime (80) Aviation (87) Private Land Mobile (90)
5.9-5.95 BROADCASTING 5.134 5.136			5.9-6.2 BROADCASTING 5.134 US136 US340		International Broadcast Stations (73F)
5.95-6.2 BROADCASTING					
6.2-6.525 MARITIME MOBILE 5.109 5.110 5.130 5.132 5.137			6.2-6.525 MARITIME MOBILE 5.109 5.110 5.130 5.132 US82 US296 US340		Maritime (80)
6.525-6.685 AERONAUTICAL MOBILE (R)			6.525-6.685 AERONAUTICAL MOBILE (R) US283 US340		Aviation (87)
6.685-6.765 AERONAUTICAL MOBILE (OR)			6.685-6.765 AERONAUTICAL MOBILE (OR) US340		
6.765-7 FIXED MOBILE except aeronautical mobile (R) 5.138			6.765-7 FIXED US22 MOBILE except aeronautical mobile (R) 5.138 US340		ISM Equipment (18) Private Land Mobile (90)
7-7.1 AMATEUR AMATEUR-SATELLITE 5.140 5.141 5.141A			7-7.2 US340	7-7.1 AMATEUR AMATEUR-SATELLITE US340	Amateur Radio (97)
7.1-7.2 AMATEUR 5.142 5.141A 5.141B				7.1-7.2 AMATEUR US340	
7.2-7.3 BROADCASTING	7.2-7.3 AMATEUR 5.142	7.2-7.3 BROADCASTING	7.2-7.3 US142 US340	7.2-7.3 AMATEUR US142 US340	International Broadcast Stations (73F) Amateur Radio (97)
7.3-7.4 BROADCASTING 5.134 5.143 5.143A 5.143B 5.143C 5.143D			7.3-7.4 BROADCASTING 5.134 US136 US340		International Broadcast Stations (73F) Maritime (80) Private Land Mobile (90)

7.4-7.45 BROADCASTING 5.143B 5.143C	7.4-7.45 FIXED MOBILE except aeronautical mobile (R)	7.4-7.45 BROADCASTING 5.143A 5.143C	7.4-7.45 FIXED MOBILE except aeronautical mobile (R) US142 US340	
7.45-8.1 FIXED MOBILE except aeronautical mobile (R) 5.144			7.45-8.1 FIXED US22 MOBILE except aeronautical mobile (R) US340	Maritime (80) Aviation (87) Private Land Mobile (90)
8.1-8.195 FIXED MARITIME MOBILE			8.1-8.195 FIXED MARITIME MOBILE US340	Maritime (80)
8.195-8.815 MARITIME MOBILE 5.109 5.110 5.132 5.145 5.111			8.195-8.815 MARITIME MOBILE 5.109 5.110 5.132 5.145 US82 5.111 US296 US340	Maritime (80) Aviation (87)
8.815-8.965 AERONAUTICAL MOBILE (R)			8.815-8.965 AERONAUTICAL MOBILE (R) US340	Aviation (87)
8.965-9.04 AERONAUTICAL MOBILE (OR)			8.965-9.04 AERONAUTICAL MOBILE (OR) US340	
9.04-9.4 FIXED			9.04-9.4 FIXED US340	Maritime (80) Private Land Mobile (90)
9.4-9.5 BROADCASTING 5.134 5.146			9.4-9.9 BROADCASTING 5.134 US136 US340	International Broadcast Stations (73F)
9.5-9.9 BROADCASTING 5.147				
9.9-9.995 FIXED			9.9-9.995 FIXED US340	Private Land Mobile (90)
9.995-10.003 STANDARD FREQUENCY AND TIME SIGNAL (10 MHz) 5.111			9.995-10.005 STANDARD FREQUENCY AND TIME SIGNAL (10 MHz) 5.111 US1 US340	
10.003-10.005 STANDARD FREQUENCY AND TIME SIGNAL Space research 5.111				Page 10

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
10.005-10.1 AERONAUTICAL MOBILE (R) 5.111			10.005-10.1 AERONAUTICAL MOBILE (R) 5.111 US283 US340		Aviation (87)
10.1-10.15 FIXED Amateur			10.1-10.15 US247 US340	10.1-10.15 AMATEUR US247 US340	Amateur Radio (97)
10.15-11.175 FIXED Mobile except aeronautical mobile (R)			10.15-11.175 FIXED Mobile except aeronautical mobile (R) US340		Private Land Mobile (90)
11.175-11.275 AERONAUTICAL MOBILE (OR)			11.175-11.275 AERONAUTICAL MOBILE (OR) US340		
11.275-11.4 AERONAUTICAL MOBILE (R)			11.275-11.4 AERONAUTICAL MOBILE (R) US283 US340		Aviation (87)
11.4-11.6 FIXED			11.4-11.6 FIXED US340		Private Land Mobile (90)
11.6-11.65 BROADCASTING 5.134 5.146			11.6-12.1 BROADCASTING 5.134 US136 US340		International Broadcast Stations (73F)
11.65-12.05 BROADCASTING 5.147					
12.05-12.1 BROADCASTING 5.134 5.146					
12.1-12.23 FIXED			12.1-12.23 FIXED US340		Private Land Mobile (90)
12.23-13.2 MARITIME MOBILE 5.109 5.110 5.132 5.145			12.23-13.2 MARITIME MOBILE 5.109 5.110 5.132 5.145 US82 US296 US340		Maritime (80)
13.2-13.26 AERONAUTICAL MOBILE (OR)			13.2-13.26 AERONAUTICAL MOBILE (OR) US340		

13.26-13.36 AERONAUTICAL MOBILE (R)	13.26-13.36 AERONAUTICAL MOBILE (R) US283 US340		Aviation (87)
13.36-13.41 FIXED RADIO ASTRONOMY 5.149	13.36-13.41 RADIO ASTRONOMY US342 G115	13.36-13.41 RADIO ASTRONOMY US342	
13.41-13.57 FIXED Mobile except aeronautical mobile (R) 5.150	13.41-13.57 FIXED Mobile except aeronautical mobile (R) 5.150 US340	13.41-13.57 FIXED 5.150 US340	ISM Equipment (18) Private Land Mobile (90)
13.57-13.6 BROADCASTING 5.134 5.151	13.57-13.87 BROADCASTING 5.134 US136 US340		International Broadcast Stations (73F)
13.6-13.8 BROADCASTING			
13.8-13.87 BROADCASTING 5.134 5.151			
13.87-14 FIXED Mobile except aeronautical mobile (R)	13.87-14 FIXED Mobile except aeronautical mobile (R) US340	13.87-14 FIXED US340	Private Land Mobile (90)
14-14.25 AMATEUR AMATEUR-SATELLITE	14-14.35 US340	14-14.25 AMATEUR AMATEUR-SATELLITE US340	Amateur Radio (97)
14.25-14.35 AMATEUR 5.152		14.25-14.35 AMATEUR US340	
14.35-14.99 FIXED Mobile except aeronautical mobile (R)	14.35-14.99 FIXED Mobile except aeronautical mobile (R) US340	14.35-14.99 FIXED US340	Private Land Mobile (90)
14.99-15.005 STANDARD FREQUENCY AND TIME SIGNAL (15 MHz) 5.111	14.99-15.01 STANDARD FREQUENCY AND TIME SIGNAL (15 MHz) 5.111 US1 US340		
15.005-15.01 STANDARD FREQUENCY AND TIME SIGNAL Space research			

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
15.01-15.1 AERONAUTICAL MOBILE (OR)			15.01-15.1 AERONAUTICAL MOBILE (OR) US340		
15.1-15.6 BROADCASTING			15.1-15.8 BROADCASTING 5.134 US136 US340		International Broadcast Stations (73F)
15.6-15.8 BROADCASTING 5.134 5.146					
15.8-16.36 FIXED 5.153			15.8-16.36 FIXED US340		Private Land Mobile (90)
16.36-17.41 MARITIME MOBILE 5.109 5.110 5.132 5.145			16.36-17.41 MARITIME MOBILE 5.109 5.110 5.132 5.145 US82 US296 US340		Maritime (80)
17.41-17.48 FIXED			17.41-17.48 FIXED US340		Private Land Mobile (90)
17.48-17.55 BROADCASTING 5.134 5.146			17.48-17.9 BROADCASTING 5.134 US136 US340		International Broadcast Stations (73F)
17.55-17.9 BROADCASTING					
17.9-17.97 AERONAUTICAL MOBILE (R)			17.9-17.97 AERONAUTICAL MOBILE (R) US283 US340		Aviation (87)
17.97-18.03 AERONAUTICAL MOBILE (OR)			17.97-18.03 AERONAUTICAL MOBILE (OR) US340		
18.030-18.052 FIXED			18.03-18.068 FIXED US340		Maritime (80) Private Land Mobile (90)
18.052-18.068 FIXED Space research					
18.068-18.168 AMATEUR AMATEUR-SATELLITE 5.154			18.068-18.168 US340	18.068-18.168 AMATEUR AMATEUR-SATELLITE US340	Amateur Radio (97)
18.168-18.78 FIXED Mobile except aeronautical mobile			18.168-18.78 FIXED Mobile US340		Maritime (80) Private Land Mobile (90)

18.78-18.9 MARITIME MOBILE	18.78-18.9 MARITIME MOBILE US82 US296 US340		Maritime (80)
18.9-19.02 BROADCASTING 5.134 5.146	18.9-19.02 BROADCASTING 5.134 US136 US340		International Broadcast Stations (73F)
19.02-19.68 FIXED	19.02-19.68 FIXED US340		Private Land Mobile (90)
19.68-19.8 MARITIME MOBILE 5.132	19.68-19.8 MARITIME MOBILE 5.132 US340		Maritime (80)
19.8-19.99 FIXED	19.8-19.99 FIXED US340		Private Land Mobile (90)
19.99-19.995 STANDARD FREQUENCY AND TIME SIGNAL Space research 5.111	19.99-20.01 STANDARD FREQUENCY AND TIME SIGNAL (20 MHz) 5.111 US1 US340		
19.995-20.01 STANDARD FREQUENCY AND TIME SIGNAL (20 MHz) 5.111			
20.01-21 FIXED Mobile	20.01-21 FIXED Mobile US340	20.01-21 FIXED US340	Private Land Mobile (90)
21-21.45 AMATEUR AMATEUR-SATELLITE	21-21.45 US340	21-21.45 AMATEUR AMATEUR-SATELLITE US340	Amateur Radio (97)
21.45-21.85 BROADCASTING	21.45-21.85 BROADCASTING US340		International Broadcast Stations (73F)
21.85-21.87 FIXED 5.155A 5.155	21.85-21.924 FIXED US340		Aviation (87) Private Land Mobile (90)
21.87-21.924 FIXED 5.155B			
21.924-22 AERONAUTICAL MOBILE (R)	21.924-22 AERONAUTICAL MOBILE (R) US340		Aviation (87)
22-22.855 MARITIME MOBILE 5.132 5.156	22-22.855 MARITIME MOBILE 5.132 US82 US296 US340		Maritime (80) Page 14

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
22.855-23 FIXED 5.156			22.855-23 FIXED US340		Private Land Mobile (90)
23-23.2 FIXED Mobile except aeronautical mobile (R) 5.156			23-23.2 FIXED Mobile except aeronautical mobile (R) US340	23-23.2 FIXED US340	
23.2-23.35 FIXED 5.156A AERONAUTICAL MOBILE (OR)			23.2-23.35 AERONAUTICAL MOBILE (OR) US340		
23.35-24 FIXED MOBILE except aeronautical mobile 5.157			23.35-24.89 FIXED MOBILE except aeronautical mobile US340	23.35-24.89 FIXED US340	Private Land Mobile (90)
24-24.89 FIXED LAND MOBILE					
24.89-24.99 AMATEUR AMATEUR-SATELLITE			24.89-24.99 US340	24.89-24.99 AMATEUR AMATEUR-SATELLITE US340	Amateur Radio (97)
24.99-25.005 STANDARD FREQUENCY AND TIME SIGNAL (25 MHz)			24.99-25.01 STANDARD FREQUENCY AND TIME SIGNAL (25 MHz) US1 US340		
25.005-25.01 STANDARD FREQUENCY AND TIME SIGNAL Space research					
25.01-25.07 FIXED MOBILE except aeronautical mobile			25.01-25.07 US340	25.01-25.07 LAND MOBILE US340 NG112	Private Land Mobile (90)
25.07-25.21 MARITIME MOBILE			25.07-25.21 MARITIME MOBILE US82 US281 US296 US340	25.07-25.21 MARITIME MOBILE US82 US281 US296 US340 NG112	Maritime (80) Private Land Mobile (90)
25.21-25.55 FIXED MOBILE except aeronautical mobile			25.21-25.33 US340	25.21-25.33 LAND MOBILE US340	Private Land Mobile (90)
			25.33-25.55 FIXED MOBILE except aeronautical mobile US340	25.33-25.55 US340	

25.55-25.67 RADIO ASTRONOMY 5.149	25.55-25.67 RADIO ASTRONOMY US74 US342		
25.67-26.1 BROADCASTING	25.67-26.1 BROADCASTING US25 US340		International Broadcast Stations (73F) Remote Pickup (74D)
26.1-26.175 MARITIME MOBILE 5.132	26.1-26.175 MARITIME MOBILE 5.132 US25 US340		Remote Pickup (74D) Low Power Auxiliary (74H) Maritime (80)
26.175-27.5 FIXED MOBILE except aeronautical mobile	26.175-26.48 US340	26.175-26.48 LAND MOBILE US340	Remote Pickup (74D) Low Power Auxiliary (74H)
	26.48-26.95 FIXED MOBILE except aeronautical mobile US340	26.48-26.95 US340	
	26.95-27.41	26.95-26.96 FIXED 5.150 US340	ISM Equipment (18)
		26.96-27.23 MOBILE except aeronautical mobile 5.150 US340	ISM Equipment (18) Personal Radio (95)
	5.150 US340	27.23-27.41 FIXED MOBILE except aeronautical mobile 5.150 US340	ISM Equipment (18) Private Land Mobile (90) Personal Radio (95)
5.150			
27.5-28 METEOROLOGICAL AIDS FIXED MOBILE	27.41-27.54 US340	27.41-27.54 FIXED LAND MOBILE US340	Private Land Mobile (90)
	27.54-28 FIXED MOBILE US298 US340	27.54-28 US298 US340	
28-29.7 AMATEUR AMATEUR-SATELLITE	28-29.7 US340	28-29.7 AMATEUR AMATEUR-SATELLITE US340	Amateur Radio (97)

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
29.7-30.005 FIXED MOBILE			29.7-29.89 US340	29.7-29.8 LAND MOBILE US340	Private Land Mobile (90)
				29.8-29.89 FIXED US340	
			29.89-29.91 FIXED MOBILE US340	29.89-29.91 US340	
			29.91-30 US340	29.91-30 FIXED US340	
30.005-30.01 SPACE OPERATION (satellite identification) FIXED MOBILE SPACE RESEARCH			30-30.56 FIXED MOBILE	30-30.56	
30.01-37.5 FIXED MOBILE			30.56-32	30.56-32 FIXED LAND MOBILE NG124	Private Land Mobile (90)
			32-33 FIXED MOBILE	32-33	
			33-34	33-34 FIXED LAND MOBILE NG124	Private Land Mobile (90)
			34-35 FIXED MOBILE	34-35	
			35-36	35-36 FIXED LAND MOBILE	Public Mobile (22) Private Land Mobile (90)

	36-37 FIXED MOBILE US220	36-37 US220	
	37-37.5	37-37.5 LAND MOBILE NG124	Private Land Mobile (90)
37.5-38.25 FIXED MOBILE Radio astronomy 5.149	37.5-38 Radio astronomy US342	37.5-38 LAND MOBILE Radio astronomy US342 NG59 NG124	
	38-38.25 FIXED MOBILE RADIO ASTRONOMY US81 US342	38-38.25 RADIO ASTRONOMY US81 US342	
38.25-39.986 FIXED MOBILE	38.25-39 FIXED MOBILE	38.25-39	
39.986-40.02 FIXED MOBILE Space research	39-40	39-40 LAND MOBILE NG124	Private Land Mobile (90)
40.02-40.98 FIXED MOBILE 5.150	40-42 FIXED MOBILE 5.150 US210 US220	40-42 5.150 US210 US220	ISM Equipment (18) Private Land Mobile (90)
40.98-41.015 FIXED MOBILE Space research 5.160 5.161			
41.015-44 FIXED MOBILE 5.160 5.161	42-46.6	42-43.69 FIXED LAND MOBILE NG124 NG141	Public Mobile (22) Private Land Mobile (90)
		43.69-46.6 LAND MOBILE NG124 NG141	Private Land Mobile (90)
44-47 FIXED MOBILE 5.162 5.162A	46.6-47 FIXED MOBILE	46.6-47	

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
47-68 BROADCASTING 5.162A 5.163 5.164 5.165 5.169 5.171	47-50 FIXED MOBILE	47-50 FIXED MOBILE BROADCASTING 5.162A	47-49.6	47-49.6 LAND MOBILE NG124	Private Land Mobile (90)
			49.6-50 FIXED MOBILE	49.6-50	
	50-54 AMATEUR 5.162A 5.166 5.167 5.167A 5.168 5.170		50-73	50-54 AMATEUR	Amateur Radio (97)
	54-68 BROADCASTING Fixed Mobile 5.172	54-68 FIXED MOBILE BROADCASTING 5.162A		54-72 BROADCASTING NG5 NG14 NG115 NG149	Broadcast Radio (TV)(73) LPTV, TV Translator/ Booster (74G) Low Power Auxiliary (74H)
68-74.8 FIXED MOBILE except aeronautical mobile 5.149 5.175 5.177 5.179	68-72 BROADCASTING Fixed Mobile 5.173	68-74.8 FIXED MOBILE 5.149 5.176 5.179			
	72-73 FIXED MOBILE			72-73 FIXED MOBILE NG3 NG49 NG56	Public Mobile (22) Aviation (87) Private Land Mobile (90) Personal Radio (95)
	73-74.6 RADIO ASTRONOMY 5.178		73-74.6 RADIO ASTRONOMY US74 US246		
	74.6-74.8 FIXED MOBILE		74.6-74.8 FIXED MOBILE US273		Private Land Mobile (90)
74.8-75.2 AERONAUTICAL RADIONAVIGATION 5.180 5.181			74.8-75.2 AERONAUTICAL RADIONAVIGATION 5.180		Aviation (87)
75.2-87.5 FIXED MOBILE except aeronautical mobile	75.2-75.4 FIXED MOBILE 5.179		75.2-75.4 FIXED MOBILE US273		Private Land Mobile (90)

5.175 5.179 5.187	75.4-76 FIXED MOBILE	75.4-87 FIXED MOBILE 5.182 5.183 5.188	75.4-88	75.4-76 FIXED MOBILE NG3 NG49 NG56	Public Mobile (22) Aviation (87) Private Land Mobile (90) Personal Radio (95)
	76-88 BROADCASTING Fixed Mobile 5.185			76-88 BROADCASTING NG5 NG14 NG115 NG149	Broadcast Radio (TV)(73) LPTV, TV Translator/ Booster (74G) Low Power Auxiliary (74H)
87.5-100 BROADCASTING 5.190	88-100 BROADCASTING	87-100 FIXED MOBILE BROADCASTING	88-108 US93	88-108 BROADCASTING NG2 US93 NG5	Broadcast Radio (FM)(73) FM Translator/Booster (74L)
100-108 BROADCASTING 5.192 5.194					
108-117.975 AERONAUTICAL RADIONAVIGATION 5.197 5.197A			108-117.975 AERONAUTICAL RADIONAVIGATION US93 US343		Aviation (87)
117.975-137 AERONAUTICAL MOBILE (R) 5.111 5.200 5.201 5.202			117.975-121.9375 AERONAUTICAL MOBILE (R) 5.111 5.200 US26 US28 US403		
			121.9375-123.0875 US30 US31 US33 US80 US102 US213	121.9375-123.0875 AERONAUTICAL MOBILE US30 US31 US33 US80 US102 US213	
			123.0875-123.5875 AERONAUTICAL MOBILE 5.200 US32 US33 US112		
			123.5875-128.8125 AERONAUTICAL MOBILE (R) US26 US403		
			128.8125-132.0125	128.8125-132.0125 AERONAUTICAL MOBILE (R)	
			132.0125-136 AERONAUTICAL MOBILE (R) US26		
			136-137 US244	136-137 AERONAUTICAL MOBILE (R) US244	Page 20

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
137-137.025 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209 SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) 5.204 5.205 5.206 5.207 5.208			137-137.025 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) US319 US320 SPACE RESEARCH (space-to-Earth) 5.208		Satellite Communications (25)
137.025-137.175 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.209 Mobile except aeronautical mobile (R) 5.204 5.205 5.206 5.207 5.208			137.025-137.175 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Mobile-satellite (space-to-Earth) US319 US320 5.208		
137.175-137.825 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209 SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) 5.204 5.205 5.206 5.207 5.208			137.175-137.825 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) US319 US320 SPACE RESEARCH (space-to-Earth) 5.208		
137.825-138 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.209 Mobile except aeronautical mobile (R) 5.204 5.205 5.206 5.207 5.208			137.825-138 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Mobile-satellite (space-to-Earth) US319 US320 5.208		
138-143.6 AERONAUTICAL MOBILE (OR) 5.210 5.211 5.212 5.214	138-143.6 FIXED MOBILE RADIOLOCATION Space research (space-to-Earth)	138-143.6 FIXED MOBILE Space research (space-to-Earth) 5.207 5.213	138-144 FIXED MOBILE G30	138-144	
143.6-143.65 AERONAUTICAL MOBILE (OR) SPACE RESEARCH (space-to-Earth) 5.211 5.212 5.214	143.6-143.65 FIXED MOBILE RADIOLOCATION SPACE RESEARCH (space-to-Earth)	143.6-143.65 FIXED MOBILE SPACE RESEARCH (space-to-Earth) 5.207 5.213			
143.65-144 AERONAUTICAL MOBILE (OR) 5.210 5.211 5.212 5.214	143.65-144 FIXED MOBILE RADIOLOCATION Space research (space-to-Earth)	143.65-144 FIXED MOBILE Space research (space-to-Earth) 5.207 5.213			

Region 1	Region 2	Region 3	Federal	Non-Federal	FCC Rule Part(s)
144-146 AMATEUR AMATEUR-SATELLITE 5.216			144-148	144-146 AMATEUR AMATEUR-SATELLITE	Amateur Radio (97)
146-148 FIXED MOBILE except aeronautical mobile (R)	146-148 AMATEUR 5.217	146-148 AMATEUR FIXED MOBILE 5.217		146-148 AMATEUR	
148-149.9 FIXED MOBILE except aeronautical mobile (R) MOBILE-SATELLITE (Earth-to-space) 5.209 5.218 5.219 5.221	148-149.9 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.209 5.218 5.219 5.221		148-149.9 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) US319 US320 US323 US325 5.218 5.219 G30	148-149.9 MOBILE-SATELLITE (Earth-to-space) US320 US323 US325 5.218 5.219 US319	Satellite Communications (25)
149.9-150.05 MOBILE-SATELLITE (Earth-to-space) 5.209 5.224A RADIONAVIGATION-SATELLITE 5.224B 5.220 5.222 5.223			149.9-150.05 MOBILE-SATELLITE (Earth-to-space) US319 US320 RADIONAVIGATION-SATELLITE 5.223		
150.05-153 FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149	150.05-156.4875 FIXED MOBILE 5.225 5.226		150.05-150.8 FIXED MOBILE US73 G30	150.05-150.8 US73	
			150.8-152.855 US73	150.8-152.855 FIXED LAND MOBILE NG4 NG51 NG112 US73 NG124	Public Mobile (22) Private Land Mobile (90) Personal Radio (95)
153-154 FIXED MOBILE except aeronautical mobile (R) Meteorological aids			152.855-156.2475	152.855-154 LAND MOBILE NG4 NG124	Remote Pickup (74D) Private Land Mobile (90)
154-156.4875 FIXED MOBILE except aeronautical mobile (R) 5.226				154-156.2475 FIXED LAND MOBILE NG112 5.226 NG117 NG124 NG148	Maritime (80) Private Land Mobile (90) Personal Radio (95)
156.4875-156.5625 MARITIME MOBILE (distress and calling via DSC) 5.111 5.226 5.227			156.2475-156.7625 US77 US106 US226 US266	156.2475-156.7625 MARITIME MOBILE US106 US226 NG117 US77 US266 NG124	Maritime (80) Aviation (87)
156.5625-156.7625 FIXED MOBILE except aeronautical mobile (R) 5.226	156.5625-156.7625 FIXED MOBILE 5.225 5.226				

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
156.7625-156.8375 MARITIME MOBILE (distress and calling) 5.111 5.226			156.7625-156.8375 MARITIME MOBILE (distress, urgency, safety and calling) 5.226 US266		Maritime (80) Aviation (87)
156.8375-174 FIXED MOBILE except aeronautical mobile 5.226 5.227A 5.229	156.8375-174 FIXED MOBILE 5.226 5.227A 5.230 5.231 5.232		156.8375-157.0375 5.226 US77 US266	156.8375-157.0375 MARITIME MOBILE 5.226 US77 US266	
			157.0375-157.1875 MARITIME MOBILE US214 5.226 US266 G109	157.0375-157.1875 5.226 US214 US266	Maritime (80)
			157.1875-161.575	157.1875-157.45 MOBILE except aeronautical mobile US266 5.226 NG111	Maritime (80) Aviation (87) Private Land Mobile (90)
				157.45-161.575 FIXED LAND MOBILE NG28 NG111 NG112 5.226 NG6 NG70 NG124 NG148 NG155	Public Mobile (22) Remote Pickup (74D) Maritime (80) Private Land Mobile (90)
			161.575-161.625 5.226 US77	161.575-161.625 MARITIME MOBILE 5.226 US77 NG6 NG17	Public Mobile (22) Maritime (80)
			161.625-161.9625 US266	161.625-161.775 LAND MOBILE NG6 5.226	Public Mobile (22) Remote Pickup (74D) Low Power Auxiliary (74H)
				161.775-161.9625 MOBILE except aeronautical mobile US266 NG6 5.226	Maritime (80) Private Land Mobile (90)
			161.9625-161.9875 MARITIME MOBILE (AIS) US228		Maritime (80)
			161.9875-162.0125	161.9875-162.0125 MOBILE except aeronautical mobile 5.226	
			162.0125-162.0375 MARITIME MOBILE (AIS) US228		
			162.0375-173.2 FIXED MOBILE US8 US11 US13 US73 US300 US312 G5	162.0375-173.2 US8 US11 US13 US73 US300 US312	Remote Pickup (74D) Private Land Mobile (90)
			173.2-173.4	173.2-173.4 FIXED Land mobile	Private Land Mobile (90)
			173.4-174 FIXED MOBILE G5	173.4-174	

174-223 BROADCASTING 5.235 5.237 5.243	174-216 BROADCASTING Fixed Mobile 5.234	174-223 FIXED MOBILE BROADCASTING 5.233 5.238 5.240 5.245	174-216	174-216 BROADCASTING NG5 NG14 NG115 NG149	Broadcast Radio (TV)(73) LPTV, TV Translator/Booster (74G) Low Power Auxiliary (74H)
	216-220 FIXED MARITIME MOBILE Radiolocation 5.241 5.242		216-217 Fixed Land mobile US210 US241 G2	216-219 FIXED MOBILE except aeronautical mobile US210 US241 NG173	Maritime (80) Private Land Mobile (90) Personal Radio (95)
			217-220 Fixed Mobile US210 US241	219-220 FIXED MOBILE except aeronautical mobile Amateur NG152 US210 US241 NG173	Maritime (80) Private Land Mobile (90) Amateur Radio (97)
	220-225 AMATEUR FIXED MOBILE Radiolocation 5.241		220-222 FIXED LAND MOBILE US241 US242		Private Land Mobile (90)
223-230 BROADCASTING Fixed Mobile 5.243 5.246 5.247		223-230 FIXED MOBILE BROADCASTING AERONAUTICAL RADIONAVIGATION Radiolocation 5.250	222-225	222-225 AMATEUR	Amateur Radio (97)
	225-235 FIXED MOBILE		225-235 FIXED MOBILE G27	225-235	
230-235 FIXED MOBILE 5.247 5.251 5.252		230-235 FIXED MOBILE AERONAUTICAL RADIONAVIGATION 5.250			
235-267 FIXED MOBILE 5.111 5.252 5.254 5.256 5.256A			235-267 FIXED MOBILE 5.111 5.256 G27 G100	235-267 5.111 5.256	Page 24

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
267-272 FIXED MOBILE Space operation (space-to-Earth) 5.254 5.257			267-322 FIXED MOBILE G27 G100	267-322	
272-273 SPACE OPERATION (space-to-Earth) FIXED MOBILE 5.254					
273-312 FIXED MOBILE 5.254					
312-315 FIXED MOBILE Mobile-satellite (Earth-to-space) 5.254 5.255					
315-322 FIXED MOBILE 5.254					
322-328.6 FIXED MOBILE RADIO ASTRONOMY 5.149			322-328.6 FIXED MOBILE US342 G27	322-328.6 US342	
328.6-335.4 AERONAUTICAL RADIONAVIGATION 5.258 5.259			328.6-335.4 AERONAUTICAL RADIONAVIGATION 5.258		Aviation (87)
335.4-387 FIXED MOBILE 5.254			335.4-399.9 FIXED MOBILE G27 G100	335.4-399.9	
387-390 FIXED MOBILE Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.254 5.255					
390-399.9 FIXED MOBILE 5.254					

399.9-400.05 MOBILE-SATELLITE (Earth-to-space) 5.209 5.224A RADIONAVIGATION-SATELLITE 5.222 5.224B 5.260 5.220	399.9-400.05 MOBILE-SATELLITE (Earth-to-space) US319 US320 RADIONAVIGATION-SATELLITE 5.260		Satellite Communications (25)
400.05-400.15 STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz) 5.261 5.262	400.05-400.15 STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz) 5.261		
400.15-401 METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209 SPACE RESEARCH (space-to-Earth) 5.263 Space operation (space-to-Earth) 5.262 5.264	400.15-401 METEOROLOGICAL AIDS (radiosonde) US70 METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) US319 US320 US324 SPACE RESEARCH (space-to-Earth) 5.263 Space operation (space-to-Earth) 5.264	400.15-401 METEOROLOGICAL AIDS (radiosonde) US70 MOBILE-SATELLITE (space-to-Earth) US320 US324 SPACE RESEARCH (space-to-Earth) 5.263 Space operation (space-to-Earth) 5.264 US319	Satellite Communications (25)
401-402 METEOROLOGICAL AIDS SPACE OPERATION (space-to-Earth) EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile	401-402 METEOROLOGICAL AIDS (radiosonde) US70 SPACE OPERATION (space-to-Earth) EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) US345 US384	401-402 METEOROLOGICAL AIDS (radiosonde) US70 SPACE OPERATION (space-to-Earth) Earth exploration-satellite (Earth-to-space) Meteorological-satellite (Earth-to-space) US345 US384	MedRadio (95I)
402-403 METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile	402-403 METEOROLOGICAL AIDS (radiosonde) US70 EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) US345 US384	402-403 METEOROLOGICAL AIDS (radiosonde) US70 Earth exploration-satellite (Earth-to-space) Meteorological-satellite (Earth-to-space) US345 US384	
403-406 METEOROLOGICAL AIDS Fixed Mobile except aeronautical mobile	403-406 METEOROLOGICAL AIDS (radiosonde) US70 US345 G6	403-406 METEOROLOGICAL AIDS (radiosonde) US70 US345	
406-406.1 MOBILE-SATELLITE (Earth-to-space) 5.266 5.267	406-406.1 MOBILE-SATELLITE (Earth-to-space) 5.266 5.267		Maritime (EPIRBs) (80V) Aviation (ELTs) (87F) Personal Radio (95)
406.1-410 FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149	406.1-410 FIXED MOBILE RADIO ASTRONOMY US74 US13 US117 G5 G6	406.1-410 RADIO ASTRONOMY US74 US13 US117	Private Land Mobile (90)

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
410-420 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-space) 5.268			410-420 FIXED MOBILE SPACE RESEARCH (space-to-space) 5.268 US13 G5	410-420 US13	Private Land Mobile (90)
420-430 FIXED MOBILE except aeronautical mobile Radiolocation 5.269 5.270 5.271			420-450 RADIOLOCATION G2 G129 5.286 US87 US230 US269 US270 US397 G8	420-450 Amateur US270 5.282 5.286 US87 US230 US269 US397	Private Land Mobile (90) Amateur Radio (97)
430-432 AMATEUR RADIOLOCATION 5.271 5.272 5.273 5.274 5.275 5.276 5.277	430-432 RADIOLOCATION Amateur 5.271 5.276 5.277 5.278 5.279				
432-438 AMATEUR RADIOLOCATION Earth exploration-satellite (active) 5.279A 5.138 5.271 5.272 5.276 5.277 5.280 5.281 5.282	432-438 RADIOLOCATION Amateur Earth exploration-satellite (active) 5.279A 5.271 5.276 5.277 5.278 5.279 5.281 5.282				
438-440 AMATEUR RADIOLOCATION 5.271 5.273 5.274 5.275 5.276 5.277 5.283	438-440 RADIOLOCATION Amateur 5.271 5.276 5.277 5.278 5.279				
440-450 FIXED MOBILE except aeronautical mobile Radiolocation 5.269 5.270 5.271 5.284 5.285 5.286					
450-455 FIXED MOBILE 5.286AA 5.209 5.271 5.286 5.286A 5.286B 5.286C 5.286D 5.286E			450-454 5.286 US87	450-454 LAND MOBILE 5.286 US87 NG112 NG124	Remote Pickup (74D) Low Power Auxiliary (74H) Private Land Mobile (90)
			454-456	454-455 FIXED LAND MOBILE NG12 NG112 NG148	Public Mobile (22) Maritime (80)
455-456 FIXED MOBILE 5.286AA 5.209 5.271 5.286A 5.286B 5.286C 5.286E	455-456 FIXED MOBILE 5.286AA MOBILE-SATELLITE (Earth-to-space) 5.286A 5.286B 5.286C 5.209	455-456 FIXED MOBILE 5.286AA 5.209 5.271 5.286A 5.286B 5.286C 5.286E		455-456 LAND MOBILE	Remote Pickup (74D) Low Power Auxiliary (74H)

Region 1	Region 2	Region 3	Federal	Non-Federal	FCC Rule Part(s)
456-459 FIXED MOBILE 5.286AA 5.271 5.287 5.288			456-459 5.287 5.288	456-460 FIXED LAND MOBILE 5.287 5.288 NG12 NG112 NG124 NG148	Public Mobile (22) Maritime (80) Private Land Mobile (90)
459-460 FIXED MOBILE 5.286AA 5.209 5.271 5.286A 5.286B 5.286C 5.286E	459-460 FIXED MOBILE 5.286AA MOBILE-SATELLITE (Earth-to-space) 5.286A 5.286B 5.286C 5.209	459-460 FIXED MOBILE 5.286AA 5.209 5.271 5.286A 5.286B 5.286C 5.286E	459-460		
460-470 FIXED MOBILE 5.286AA Meteorological-satellite (space-to-Earth) 5.287 5.288 5.289 5.290			460-470 Meteorological-satellite (space-to-Earth) 5.287 5.288 5.289 US73 US201 US209	460-462.5375 FIXED LAND MOBILE 5.289 US201 US209 NG124	Private Land Mobile (90)
				462.5375-462.7375 LAND MOBILE 5.289 US201	Personal Radio (95)
				462.7375-467.5375 FIXED LAND MOBILE 5.287 5.289 US73 US201 US209 NG124	Private Land Mobile (90)
				467.5375-467.7375 LAND MOBILE 5.287 5.289 US201	Personal Radio (95)
				467.7375-470 FIXED LAND MOBILE 5.288 5.289 US73 US201 NG124	Maritime (80) Private Land Mobile (90)
470-790 BROADCASTING 5.149 5.291A 5.294 5.296 5.300 5.302 5.304 5.306 5.311A 5.312	470-512 BROADCASTING Fixed Mobile 5.292 5.293	470-585 FIXED MOBILE BROADCASTING 5.291 5.298	470-608	470-512 FIXED LAND MOBILE BROADCASTING NG5 NG14 NG66 NG115 NG149	Public Mobile (22) Broadcast Radio (TV)(73) LPTV, TV Translator/Booster (74G) Low Power Auxiliary (74H) Private Land Mobile (90)
	512-608 BROADCASTING 5.297	585-610 FIXED MOBILE BROADCASTING RADIONAVIGATION 5.149 5.305 5.306 5.307		512-608 BROADCASTING NG5 NG14 NG115 NG149	Broadcast Radio (TV)(73) LPTV, TV Translator/Booster (74G) Low Power Auxiliary (74H)
	608-614 RADIO ASTRONOMY Mobile-satellite except aeronautical mobile-satellite (Earth-to-space)		608-614 LAND MOBILE (medical telemetry and medical telecommand) RADIO ASTRONOMY US74 US246		Personal Radio (95)
	614-698 BROADCASTING Fixed Mobile 5.293 5.309 5.311A	610-890 FIXED MOBILE 5.313A 5.317A BROADCASTING 5.149 5.305 5.306 5.307 5.311A 5.320	614-698	614-698 BROADCASTING NG5 NG14 NG115 NG149	Broadcast Radio (TV)(73) LPTV, TV Translator/Booster (74G) Low Power Auxiliary (74H)

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
(See previous page)	698-806 FIXED MOBILE 5.313B 5.317A BROADCASTING	(See previous page)	698-763	698-763 FIXED MOBILE BROADCASTING NG159	Wireless Communications (27) LPTV and TV Translator (74G)
			763-775	763-775 FIXED MOBILE NG158 NG159	Public Safety Land Mobile (90R)
			775-793	775-793 FIXED MOBILE BROADCASTING NG159	Wireless Communications (27) LPTV and TV Translator (74G)
790-862 FIXED MOBILE except aeronautical mobile 5.316B 5.317A BROADCASTING			793-805	793-805 FIXED MOBILE NG158 NG159	Public Safety Land Mobile (90R)
	5.293 5.309 5.311A		805-806	805-806 FIXED MOBILE BROADCASTING NG159	Wireless Communications (27) LPTV and TV Translator (74G)
	806-890 FIXED MOBILE 5.317A BROADCASTING		806-809	806-809 LAND MOBILE	Public Safety Land Mobile (90S)
			809-851	809-849 FIXED LAND MOBILE	Public Mobile (22) Private Land Mobile (90)
				849-851 AERONAUTICAL MOBILE	Public Mobile (22)
5.312 5.314 5.315 5.316 5.316A 5.319			851-854	851-854 LAND MOBILE	Public Safety Land Mobile (90S)
862-890 FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322 5.319 5.323	5.317 5.318		854-890	854-894 FIXED LAND MOBILE	Public Mobile (22) Private Land Mobile (90)

890-942 FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322 Radiolocation	890-902 FIXED MOBILE except aeronautical mobile 5.317A Radiolocation	890-942 FIXED MOBILE 5.317A BROADCASTING Radiolocation	890-902	US116 US268	
				894-896 AERONAUTICAL MOBILE US116 US268	Public Mobile (22)
				896-901 FIXED LAND MOBILE US116 US268	Private Land Mobile (90)
	5.318 5.325		US116 US268 G2	901-902 FIXED MOBILE US116 US268	Personal Communications (24)
	902-928 FIXED Amateur Mobile except aeronautical mobile 5.325A Radiolocation 5.150 5.325 5.326		902-928 RADIOLOCATION G59 5.150 US218 US267 US275 G11	902-928 5.150 US218 US267 US275	ISM Equipment (18) Private Land Mobile (90) Amateur Radio (97)
	928-942 FIXED MOBILE except aeronautical mobile 5.317A Radiolocation		928-932	928-929 FIXED US116 US268 NG120	Public Mobile (22) Private Land Mobile (90) Fixed Microwave (101)
				929-930 FIXED LAND MOBILE US116 US268	Private Land Mobile (90)
				930-931 FIXED MOBILE US116 US268	Personal Communications (24)
			US116 US268 G2	931-932 FIXED LAND MOBILE US116 US268	Public Mobile (22)
			932-935 FIXED US268 G2	932-935 FIXED US268 NG120	Public Mobile (22) Fixed Microwave (101)
			935-941	935-940 FIXED LAND MOBILE US116 US268	Private Land Mobile (90)
			US116 US268 G2	940-941 FIXED MOBILE US116 US268	Personal Communications (24)
5.323	5.325	5.327			

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
(See previous page)	(See previous page)	(See previous page)	941-944 FIXED US268 US301 G2	941-944 FIXED US268 US301 NG30 NG120	Public Mobile (22) Aural Broadcast Auxiliary (74E) Fixed Microwave (101)
942-960 FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322 5.323	942-960 FIXED MOBILE 5.317A	942-960 FIXED MOBILE 5.317A BROADCASTING 5.320	944-960	944-960 FIXED NG120	Public Mobile (22) Aural Broadcast Auxiliary (74E) Low Power Auxiliary (74H) Fixed Microwave (101)
960-1164 AERONAUTICAL MOBILE (R) 5.327A AERONAUTICAL RADIONAVIGATION 5.328			960-1164 AERONAUTICAL RADIONAVIGATION 5.328 US224 US400		Aviation (87)
1164-1215 AERONAUTICAL RADIONAVIGATION 5.328 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.328A			1164-1215 AERONAUTICAL RADIONAVIGATION 5.328 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328A US224		
1215-1240 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active) 5.330 5.331 5.332			1215-1240 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G56 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) G132 SPACE RESEARCH (active) 5.332	1215-1240 Earth exploration-satellite (active) Space research (active)	
1240-1300 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active) Amateur 5.282 5.330 5.331 5.332 5.335 5.335A			1240-1300 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G56 SPACE RESEARCH (active) AERONAUTICAL RADIONAVIGATION 5.332 5.335	1240-1300 AERONAUTICAL RADIONAVIGATION Amateur Earth exploration-satellite (active) Space research (active) 5.282	Amateur Radio (97)
1300-1350 RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.337 RADIONAVIGATION-SATELLITE (Earth-to-space) 5.149 5.337A			1300-1350 AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation G2 US342	1300-1350 AERONAUTICAL RADIONAVIGATION 5.337 US342	Aviation (87)
1350-1400 FIXED MOBILE RADIOLOCATION	1350-1400 RADIOLOCATION 5.338A		1350-1390 FIXED MOBILE RADIOLOCATION G2 5.334 5.339 US342 US385 G27 G114	1350-1390 5.334 5.339 US342 US385	

5.149 5.338 5.338A 5.339	5.149 5.334 5.339
1400-1427 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341	
1427-1429 SPACE OPERATION (Earth-to-space) FIXED MOBILE except aeronautical mobile 5.338A 5.341	
1429-1452 FIXED MOBILE except aeronautical mobile 5.338A 5.341 5.342	1429-1452 FIXED MOBILE 5.343 5.338A 5.341
1452-1492 FIXED MOBILE except aeronautical mobile BROADCASTING 5.345 BROADCASTING-SATELLITE 5.208B 5.345 5.341 5.342	1452-1492 FIXED MOBILE 5.343 BROADCASTING 5.345 BROADCASTING-SATELLITE 5.208B 5.345 5.341 5.344

1390-1395 5.339 US37 US342 US385 US398	1390-1392 FIXED MOBILE except aeronautical mobile Fixed-satellite (Earth-to-space) US368 5.339 US37 US342 US385 US398	Wireless Communications (27)
	1392-1395 FIXED MOBILE except aeronautical mobile 5.339 US37 US342 US385 US398	
1395-1400 LAND MOBILE (medical telemetry and medical telecommand) 5.339 US37 US342 US385 US398		Personal Radio (95)
1400-1427 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) 5.341 US246		
1427-1429.5 LAND MOBILE (medical telemetry and medical telecommand) US350 5.341 US37 US398	1427-1429.5 LAND MOBILE (telemetry and telecommand) Fixed (telemetry) 5.341 US37 US350 US398	Private Land Mobile (90) Personal Radio (95)
1429.5-1432 5.341 US37 US350 US398	1429.5-1430 FIXED (telemetry and telecommand) LAND MOBILE (telemetry and telecommand) 5.341 US37 US350 US398	
	1430-1432 FIXED (telemetry and telecommand) LAND MOBILE (telemetry and telecommand) Fixed-satellite (space-to-Earth) US368 5.341 US37 US350 US398	
1432-1435 5.341 US361	1432-1435 FIXED MOBILE except aeronautical mobile 5.341 US361	Wireless Communications (27)
1435-1525 MOBILE (aeronautical telemetry) 5.341 US78		Aviation (87)

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
1492-1518 FIXED MOBILE except aeronautical mobile 5.341 5.342	1492-1518 FIXED MOBILE 5.343 5.341 5.344	1492-1518 FIXED MOBILE 5.341	(see previous page)		
1518-1525 FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B 5.351A 5.341 5.342	1518-1525 FIXED MOBILE 5.343 MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B 5.351A 5.341 5.344	1518-1525 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B 5.351A 5.341			
1525-1530 SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A Earth exploration-satellite Mobile except aeronautical mobile 5.349 5.341 5.342 5.350 5.351 5.352A 5.354	1525-1530 SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A Earth exploration-satellite Fixed Mobile 5.343 5.341 5.351 5.354	1525-1530 SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A Earth exploration-satellite Mobile 5.349 5.341 5.351 5.352A 5.354	1525-1535 MOBILE-SATELLITE (space-to-Earth) US315 US380 5.341 5.351		Satellite Communications (25) Maritime (80)
1530-1535 SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A 5.353A Earth exploration-satellite Fixed Mobile except aeronautical mobile 5.341 5.342 5.351 5.354	1530-1535 SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A 5.353A Earth exploration-satellite Fixed Mobile 5.343 5.341 5.351 5.354				
1535-1559 MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A 5.341 5.351 5.353A 5.354 5.355 5.356 5.357 5.357A 5.359 5.362A			1535-1559 MOBILE-SATELLITE (space-to-Earth) US308 US309 US315 US380 5.341 5.351 5.356		Satellite Communications (25) Maritime (80) Aviation (87)
1559-1610 AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.208B 5.328B 5.329A 5.341 5.362B 5.362C			1559-1610 AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.341 US208 US260 US343		Aviation (87)
1610-1610.6 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION 5.341 5.355 5.359 5.364 5.366 5.367 5.368 5.369 5.371 5.372	1610-1610.6 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space) 5.341 5.364 5.366 5.367 5.368 5.370 5.372	1610-1610.6 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Radiodetermination-satellite (Earth-to-space) 5.341 5.355 5.359 5.364 5.366 5.367 5.368 5.369 5.372	1610-1610.6 MOBILE-SATELLITE (Earth-to-space) US319 US380 AERONAUTICAL RADIONAVIGATION US260 RADIODETERMINATION-SATELLITE (Earth-to-space) 5.341 5.364 5.366 5.367 5.368 5.372 US208		Satellite Communications (25) Aviation (87)

1610.6-1613.8 MOBILE-SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION 5.149 5.341 5.355 5.359 5.364 5.366 5.367 5.368 5.369 5.371 5.372	1610.6-1613.8 MOBILE-SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space) 5.149 5.341 5.364 5.366 5.367 5.368 5.370 5.372	1610.6-1613.8 MOBILE-SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION Radiodetermination-satellite (Earth-to-space) 5.149 5.341 5.355 5.359 5.364 5.366 5.367 5.368 5.369 5.372	1610.6-1613.8 MOBILE-SATELLITE (Earth-to-space) US319 US380 RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION US260 RADIODETERMINATION-SATELLITE (Earth-to-space) 5.341 5.364 5.366 5.367 5.368 5.372 US208 US342	
1613.8-1626.5 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) 5.208B 5.341 5.355 5.359 5.364 5.365 5.366 5.367 5.368 5.369 5.371 5.372	1613.8-1626.5 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space) Mobile-satellite (space-to-Earth) 5.208B 5.341 5.364 5.365 5.366 5.367 5.368 5.370 5.372	1613.8-1626.5 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) 5.208B Radiodetermination-satellite (Earth-to-space) 5.341 5.355 5.359 5.364 5.365 5.366 5.367 5.368 5.369 5.372	1613.8-1626.5 MOBILE-SATELLITE (Earth-to-space) US319 US380 AERONAUTICAL RADIONAVIGATION US260 RADIODETERMINATION-SATELLITE (Earth-to-space) Mobile-satellite (space-to-Earth) 5.341 5.364 5.365 5.366 5.367 5.368 5.372 US208	
1626.5-1660 MOBILE-SATELLITE (Earth-to-space) 5.351A 5.341 5.351 5.353A 5.354 5.355 5.357A 5.359 5.362A 5.374 5.375 5.376			1626.5-1660 MOBILE-SATELLITE (Earth-to-space) US308 US309 US315 US380 5.341 5.351 5.375	Satellite Communications (25) Maritime (80) Aviation (87)
1660-1660.5 MOBILE-SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY 5.149 5.341 5.351 5.354 5.362A 5.376A			1660-1660.5 MOBILE-SATELLITE (Earth-to-space) US308 US309 US380 RADIO ASTRONOMY 5.341 5.351 US342	Satellite Communications (25) Aviation (87)
1660.5-1668 RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.341 5.379 5.379A			1660.5-1668.4 RADIO ASTRONOMY US74 SPACE RESEARCH (passive) 5.341 US246	
1668-1668.4 MOBILE-SATELLITE (Earth-to-space) 5.351A 5.379B 5.379C RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.341 5.379 5.379A				
1668.4-1670 METEOROLOGICAL AIDS FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (Earth-to-space) 5.351A 5.379B 5.379C RADIO ASTRONOMY 5.149 5.341 5.379D 5.379E			1668.4-1670 METEOROLOGICAL AIDS (radiosonde) RADIO ASTRONOMY US74 5.341 US99 US342	Page 34

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
1670-1675 METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (Earth-to-space) 5.351A 5.379B 5.341 5.379D 5.379E 5.380A			1670-1675 5.341 US211 US362	1670-1675 FIXED MOBILE except aeronautical mobile 5.341 US211 US362	Wireless Communications (27)
1675-1690 METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.341			1675-1700 METEOROLOGICAL AIDS (radiosonde) METEOROLOGICAL-SATELLITE (space-to-Earth) 5.289 5.341 US211		
1690-1700 METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) Fixed Mobile except aeronautical mobile 5.289 5.341 5.382	1690-1700 METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) 5.289 5.341 5.381				
1700-1710 FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.289 5.341		1700-1710 FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.289 5.341 5.384	1700-1710 FIXED G118 METEOROLOGICAL-SATELLITE (space-to-Earth) 5.289 5.341	1700-1710 METEOROLOGICAL-SATELLITE (space-to-Earth) Fixed 5.289 5.341	
1710-1930 FIXED MOBILE 5.384A 5.388A 5.388B 5.149 5.341 5.385 5.386 5.387 5.388			1710-1755 5.341 US378 US385	1710-1755 FIXED MOBILE 5.341 US378 US385	Wireless Communications (27)
			1755-1850 FIXED MOBILE SPACE OPERATION (Earth-to-space) G42	1755-1850	
			1850-1980	1850-2000 FIXED MOBILE	RF Devices (15) Personal Communications (24) Fixed Microwave (101)
1930-1970 FIXED MOBILE 5.388A 5.388B 5.388	1930-1970 FIXED MOBILE 5.388A 5.388B Mobile-satellite (Earth-to-space) 5.388	1930-1970 FIXED MOBILE 5.388A 5.388B 5.388			
1970-1980 FIXED MOBILE 5.388A 5.388B 5.388					

1980-2010 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.351A 5.388 5.389A 5.389B 5.389F			1980-2025	NG177	
				2000-2020 MOBILE-SATELLITE (Earth-to-space) US380 NG156	Satellite Communications (25)
2010-2025 FIXED MOBILE 5.388A 5.388B 5.388	2010-2025 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.388 5.389C 5.389E	2010-2025 FIXED MOBILE 5.388A 5.388B 5.388		2020-2025 FIXED MOBILE NG177	
2025-2110 SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space) FIXED MOBILE 5.391 SPACE RESEARCH (Earth-to-space) (space-to-space) 5.392			2025-2110 SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space) SPACE RESEARCH (Earth-to-space) (space-to-space) 5.391 5.392 US90 US222 US346 US347 US393	2025-2110 FIXED NG118 MOBILE 5.391 5.392 US90 US222 US346 US347 US393	TV Auxiliary Broadcasting (74F) Cable TV Relay (78) Local TV Transmission (101J)
2110-2120 FIXED MOBILE 5.388A 5.388B SPACE RESEARCH (deep space) (Earth-to-space) 5.388			2110-2120 US252	2110-2120 FIXED MOBILE US252	Public Mobile (22) Wireless Communications (27) Fixed Microwave (101)
2120-2170 FIXED MOBILE 5.388A 5.388B 5.388	2120-2160 FIXED MOBILE 5.388A 5.388B Mobile-satellite (space-to-Earth) 5.388 2160-2170 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.388 5.389C 5.389E	2120-2170 FIXED MOBILE 5.388A 5.388B 5.388	2120-2200	2120-2180 FIXED MOBILE NG153 NG178	
2170-2200 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A 5.388 5.389A 5.389F				2180-2200 MOBILE-SATELLITE (space-to-Earth) US380 NG168	Satellite Communications (25) Page 36

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
2200-2290 SPACE OPERATION (space-to-Earth) (space-to-space) EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space) FIXED MOBILE 5.391 SPACE RESEARCH (space-to-Earth) (space-to-space) 5.392			2200-2290 SPACE OPERATION (space-to-Earth) (space-to-space) EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space) FIXED (line-of-sight only) MOBILE (line-of-sight only including aeronautical telemetry, but excluding flight testing of manned aircraft) 5.391 SPACE RESEARCH (space-to-Earth) (space-to-space) 5.392 US303	2200-2290 US303	
2290-2300 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (space-to-Earth)			2290-2300 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (space-to-Earth)	2290-2300 SPACE RESEARCH (deep space) (space-to-Earth)	
2300-2450 FIXED MOBILE 5.384A Amateur Radiolocation	2300-2450 FIXED MOBILE 5.384A RADIOLOCATION Amateur		2300-2305 G122	2300-2305 Amateur	Amateur Radio (97)
			2305-2310 US338 G122	2305-2310 FIXED MOBILE except aeronautical mobile RADIOLOCATION Amateur US338	Wireless Communications (27) Amateur Radio (97)
			2310-2320 Fixed Mobile US339 Radiolocation G2 US327	2310-2320 FIXED MOBILE US339 BROADCASTING-SATELLITE RADIOLOCATION 5.396 US327	Wireless Communications (27) Aviation (87)
			2320-2345 Fixed Radiolocation G2 US327	2320-2345 BROADCASTING-SATELLITE 5.396 US327	Satellite Communications (25)
			2345-2360 Fixed Mobile US339 Radiolocation G2 US327	2345-2360 FIXED MOBILE US339 BROADCASTING-SATELLITE RADIOLOCATION 5.396 US327	Wireless Communications (27) Aviation (87)
			2360-2390 MOBILE US276 RADIOLOCATION G2 G120 Fixed	2360-2390 MOBILE US276	Aviation (87)

5.150 5.282 5.395	5.150 5.282 5.393 5.394 5.396		2390-2395 MOBILE US276	2390-2395 AMATEUR MOBILE US276	Aviation (87) Amateur Radio (97)
			2395-2400 G122	2395-2400 AMATEUR	Amateur Radio (97)
			2400-2417 5.150 G122	2400-2417 AMATEUR 5.150 5.282	ISM Equipment (18) Amateur Radio (97)
			2417-2450 Radiolocation G2 5.150	2417-2450 Amateur 5.150 5.282	
2450-2483.5 FIXED MOBILE Radiolocation 5.150 5.397	2450-2483.5 FIXED MOBILE RADIOLOCATION 5.150		2450-2483.5 5.150 US41	2450-2483.5 FIXED MOBILE Radiolocation 5.150 US41	ISM Equipment (18) TV Auxiliary Broadcasting (74F) Private Land Mobile (90) Fixed Microwave (101)
2483.5-2500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A Radiolocation 5.150 5.371 5.397 5.398 5.399 5.400 5.402	2483.5-2500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A RADIODETERMINATION-SATELLITE (space-to-Earth) 5.398 RADIOLOCATION 5.150 5.402	2483.5-2500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A RADIOLOCATION Radiodetermination-satellite (space-to-Earth) 5.398 5.150 5.400 5.402	2483.5-2500 MOBILE-SATELLITE (space-to-Earth) US319 US380 US391 RADIODETERMINATION-SATELLITE (space-to-Earth) 5.398 5.150 5.402 US41	2483.5-2495 MOBILE-SATELLITE (space-to-Earth) US380 RADIODETERMINATION-SATEL-LITE (space-to-Earth) 5.398 5.150 5.402 US41 US319 NG147	ISM Equipment (18) Satellite Communications (25)
				2495-2500 FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) US380 RADIODETERMINATION-SATEL-LITE (space-to-Earth) 5.398 5.150 5.402 US41 US319 US391 NG147	ISM Equipment (18) Satellite Communications (25) Wireless Communications (27)
2500-2520 FIXED 5.410 MOBILE except aeronautical mobile 5.384A 5.405 5.412	2500-2520 FIXED 5.410 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A 5.404	2500-2520 FIXED 5.410 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (space-to-Earth) 5.351A 5.407 5.414 5.414A 5.404 5.415A	2500-2655	2500-2655 FIXED US205 MOBILE except aeronautical mobile	Wireless Communications (27)
2520-2655 FIXED 5.410 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416	2520-2655 FIXED 5.410 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416	2520-2535 FIXED 5.410 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 5.403 5.414A 5.415A			
5.339 5.405 5.412 5.417C 5.417D 5.418B 5.418C	5.339 5.417C 5.417D 5.418B 5.418C	2535-2655 FIXED 5.410 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 5.339 5.417A 5.417B 5.417C 5.417D 5.418 5.418A 5.418B 5.418C	5.339 US205	5.339	Page 38

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
2655-2670 FIXED 5.410 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.208B 5.413 5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149 5.412	2655-2670 FIXED 5.410 FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149 5.208B	2655-2670 FIXED 5.410 FIXED-SATELLITE (Earth-to-space) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149 5.208B 5.420	2655-2690 Earth exploration-satellite (passive) Radio astronomy US385 Space research (passive) US205	2655-2690 FIXED US205 MOBILE except aeronautical mobile Earth exploration-satellite (passive) Radio astronomy Space research (passive) US385	Wireless Communications (27)
2670-2690 FIXED 5.410 MOBILE except aeronautical mobile 5.384A Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149 5.412	2670-2690 FIXED 5.410 FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.208B 5.415 MOBILE except aeronautical mobile 5.384A Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149	2670-2690 FIXED 5.410 FIXED-SATELLITE (Earth-to-space) 5.415 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (Earth-to-space) 5.351A 5.419 Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149			
2690-2700 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.422			2690-2700 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) US246		
2700-2900 AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation 5.423 5.424			2700-2900 METEOROLOGICAL AIDS AERONAUTICAL RADIONAVIGATION 5.337 US18 Radiolocation G2 5.423 G15	2700-2900 5.423 US18	Aviation (87)
2900-3100 RADIOLOCATION 5.424A RADIONAVIGATION 5.426 5.425 5.427			2900-3100 RADIOLOCATION 5.424A G56 MARITIME RADIONAVIGATION 5.427 US44 US316	2900-3100 MARITIME RADIONAVIGATION Radiolocation US44 5.427 US316	Maritime (80) Private Land Mobile (90)
3100-3300 RADIOLOCATION Earth exploration-satellite (active) Space research (active) 5.149 5.428			3100-3300 RADIOLOCATION G59 Earth exploration-satellite (active) Space research (active) US342	3100-3300 Earth exploration-satellite (active) Space research (active) Radiolocation US342	Private Land Mobile (90)

3300-3400 RADIOLOCATION 5.149 5.429 5.430	3300-3400 RADIOLOCATION Amateur Fixed Mobile 5.149	3300-3400 RADIOLOCATION Amateur 5.149 5.429	3300-3500 RADIOLOCATION US108 G2 US342	3300-3500 Amateur Radiolocation US108 5.282 US342	Private Land Mobile (90) Amateur Radio (97)
3400-3600 FIXED FIXED-SATELLITE (space-to-Earth) Mobile 5.430A Radiolocation 5.431	3400-3500 FIXED FIXED-SATELLITE (space-to-Earth) Amateur Mobile 5.431A Radiolocation 5.433 5.282	3400-3500 FIXED FIXED-SATELLITE (space-to-Earth) Amateur Mobile 5.432B Radiolocation 5.433 5.282 5.432 5.432A			
	3500-3700 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Radiolocation 5.433	3500-3600 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.433A Radiolocation 5.433	3500-3650 RADIOLOCATION G59 AERONAUTICAL RADIONAVIGATION (ground-based) G110 US245	3500-3600 Radiolocation	Private Land Mobile (90)
3600-4200 FIXED FIXED-SATELLITE (space-to-Earth) Mobile		3600-3700 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Radiolocation 5.433 5.435		3600-3650 FIXED-SATELLITE (space-to-Earth) US245 Radiolocation	Satellite Communications (25) Private Land Mobile (90)
			3650-3700 US348 US349	3650-3700 FIXED FIXED-SATELLITE (space-to-Earth) NG169 NG185 MOBILE except aeronautical mobile US348 US349	
	3700-4200 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile		3700-4200	3700-4200 FIXED FIXED-SATELLITE (space-to-Earth) NG180	Satellite Communications (25) Fixed Microwave (101)
4200-4400 AERONAUTICAL RADIONAVIGATION 5.438 5.439 5.440			4200-4400 AERONAUTICAL RADIONAVIGATION 5.440 US261		Aviation (87)
4400-4500 FIXED MOBILE 5.440A			4400-4500 FIXED MOBILE	4400-4500	
4500-4800 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 MOBILE 5.440A			4500-4800 FIXED MOBILE US245	4500-4800 FIXED-SATELLITE (space-to-Earth) 5.441 US245	
4800-4990 FIXED MOBILE 5.440A 5.442 Radio astronomy 5.149 5.339 5.443			4800-4940 FIXED MOBILE US203 US342	4800-4940 US203 US342	
			4940-4990 5.339 US342 US385 G122	4940-4990 FIXED MOBILE except aeronautical mobile 5.339 US342 US385	Public Safety Land Mobile (90Y)

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
4990-5000 FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY Space research (passive) 5.149			4990-5000 RADIO ASTRONOMY US74 Space research (passive) US246		
5000-5010 AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (Earth-to-space) 5.367			5000-5010 AERONAUTICAL RADIONAVIGATION US260 RADIONAVIGATION-SATELLITE (Earth-to-space) 5.367 US211		Aviation (87)
5010-5030 AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.443B 5.367			5010-5030 AERONAUTICAL RADIONAVIGATION US260 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.443B 5.367 US211		
5030-5091 AERONAUTICAL RADIONAVIGATION 5.367 5.444			5030-5091 AERONAUTICAL RADIONAVIGATION US260 5.367 US211 US444		
5091-5150 AERONAUTICAL RADIONAVIGATION AERONAUTICAL MOBILE 5.444B 5.367 5.444 5.444A			5091-5150 AERONAUTICAL RADIONAVIGATION US260 5.367 US211 US344 US444 US444A		Satellite Communications (25) Aviation (87)
5150-5250 AERONAUTICAL RADIONAVIGATION FIXED-SATELLITE (Earth-to-space) 5.447A MOBILE except aeronautical mobile 5.446A 5.446B 5.446 5.446C 5.447 5.447B 5.447C			5150-5250 AERONAUTICAL RADIONAVIGATION US260 US211 US307 US344	5150-5250 AERONAUTICAL RADIONAVIGATION US260 FIXED-SATELLITE (Earth-to-space) 5.447A US344 5.447C US211 US307	RF Devices (15) Satellite Communications (25) Aviation (87)
5250-5255 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.447D MOBILE except aeronautical mobile 5.446A 5.447F 5.447E 5.448 5.448A			5250-5255 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G59 SPACE RESEARCH (active) 5.447D 5.448A	5250-5255 Earth exploration-satellite (active) Radiolocation Space research	RF Devices (15) Private Land Mobile (90)
5255-5350 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) MOBILE except aeronautical mobile 5.446A 5.447F 5.447E 5.448 5.448A			5255-5350 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G59 SPACE RESEARCH (active) 5.448A	5255-5350 Earth exploration-satellite (active) Radiolocation Space research (active) 5.448A	
5350-5460 EARTH EXPLORATION-SATELLITE (active) 5.448B SPACE RESEARCH (active) 5.448C AERONAUTICAL RADIONAVIGATION 5.449 RADIOLOCATION 5.448D			5350-5460 EARTH EXPLORATION-SATELLITE (active) 5.448B SPACE RESEARCH (active) AERONAUTICAL RADIONAVIGATION 5.449 RADIOLOCATION G56 US390 G130	5350-5460 AERONAUTICAL RADIONAVIGATION 5.449 Earth exploration-satellite (active) 5.448B Space research (active) Radiolocation US390	Aviation (87) Private Land Mobile (90)

5460-5470 RADIONAVIGATION 5.449 EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.448D 5.448B			5460-5470 RADIONAVIGATION 5.449 US65 EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION G56 5.448B US49 G130	5460-5470 RADIONAVIGATION 5.449 US65 Earth exploration-satellite (active) Space research (active) Radiolocation 5.448B US49	Maritime (80) Aviation (87) Private Land Mobile (90)
5470-5570 MARITIME RADIONAVIGATION MOBILE except aeronautical mobile 5.446A 5.450A EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.450B 5.448B 5.450 5.451			5470-5570 MARITIME RADIONAVIGATION US65 EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION G56 5.448B US50 G131	5470-5570 MARITIME RADIONAVIGATION US65 RADIOLOCATION Earth exploration-satellite (active) Space research (active) US50	RF Devices (15) Maritime (80) Private Land Mobile (90)
5570-5650 MARITIME RADIONAVIGATION MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION 5.450B 5.450 5.451 5.452			5570-5600 MARITIME RADIONAVIGATION US65 RADIOLOCATION G56 US50 G131	5570-5600 MARITIME RADIONAVIGATION US65 RADIOLOCATION US50	
			5600-5650 MARITIME RADIONAVIGATION US65 METEOROLOGICAL AIDS RADIOLOCATION G56 5.452 US50 G131	5600-5650 MARITIME RADIONAVIGATION US65 METEOROLOGICAL AIDS RADIOLOCATION 5.452 US50	
5650-5725 MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION Amateur Space research (deep space) 5.282 5.451 5.453 5.454 5.455			5650-5925 RADIOLOCATION G2 5.150 US245	5650-5830 Amateur 5.150 5.282	RF Devices (15) ISM Equipment (18) Amateur Radio (97)
5725-5830 FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur 5.150 5.451 5.453 5.455 5.456	5725-5830 RADIOLOCATION Amateur 5.150 5.453 5.455				
5830-5850 FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur Amateur-satellite (space-to-Earth) 5.150 5.451 5.453 5.455 5.456	5830-5850 RADIOLOCATION Amateur Amateur-satellite (space-to-Earth) 5.150 5.453 5.455			5830-5850 Amateur Amateur-satellite (space-to-Earth) 5.150	
5850-5925 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.150	5850-5925 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Amateur Radiolocation 5.150	5850-5925 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Radiolocation 5.150		5850-5925 FIXED-SATELLITE (Earth-to-space) US245 MOBILE NG160 Amateur 5.150	ISM Equipment (18) Private Land Mobile (90) Personal Radio (95) Amateur Radio (97)

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
5925-6700 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B MOBILE 5.457C 5.149 5.440 5.458			5925-6425	5925-6425 FIXED FIXED-SATELLITE (Earth-to-space) NG181	Satellite Communications (25) Fixed Microwave (101)
			6425-6525 5.440 5.458	6425-6525 FIXED-SATELLITE (Earth-to-space) MOBILE 5.440 5.458	TV Broadcast Auxiliary (74F) Cable TV Relay (78) Fixed Microwave (101)
			6525-6700 5.458 US342	6525-6700 FIXED FIXED-SATELLITE (Earth-to-space) 5.458 US342	Fixed Microwave (101)
6700-7075 FIXED FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441 MOBILE 5.458 5.458A 5.458B 5.458C			6700-7125 5.458	6700-6875 FIXED FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441 5.458 5.458A 5.458B	Satellite Communications (25) Fixed Microwave (101)
				6875-7025 FIXED NG118 FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441 MOBILE NG171 5.458 5.458A 5.458B	Satellite Communications (25) TV Broadcast Auxiliary (74F) Cable TV Relay (78)
				7025-7075 FIXED NG118 FIXED-SATELLITE (Earth-to-space) NG172 MOBILE NG171 5.458 5.458A 5.458B	TV Broadcast Auxiliary (74F) Cable TV Relay (78)
7075-7145 FIXED MOBILE 5.458 5.459				7075-7125 FIXED NG118 MOBILE NG171 5.458	
			7125-7145 FIXED 5.458 G116	7125-7235 5.458 US262	
7145-7235 FIXED MOBILE SPACE RESEARCH (Earth-to-space) 5.460 5.458 5.459			7145-7190 FIXED SPACE RESEARCH (deep space) (Earth-to-space) US262 5.458 G116		
			7190-7235 FIXED SPACE RESEARCH (Earth-to-space) G133 5.458 G134		

7235-7250 FIXED MOBILE 5.458	7235-7250 FIXED 5.458	7235-7250 5.458	
7250-7300 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE 5.461	7250-7300 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Fixed G117	7250-8025	
7300-7450 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.461	7300-7450 FIXED FIXED-SATELLITE (space-to-Earth) Mobile-satellite (space-to-Earth) G117		
7450-7550 FIXED FIXED-SATELLITE (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.461A	7450-7550 FIXED FIXED-SATELLITE (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) Mobile-satellite (space-to-Earth) G104 G117		
7550-7750 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile	7550-7750 FIXED FIXED-SATELLITE (space-to-Earth) Mobile-satellite (space-to-Earth) G117		
7750-7850 FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) 5.461B MOBILE except aeronautical mobile	7750-7850 FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) 5.461B		
7850-7900 FIXED MOBILE except aeronautical mobile	7850-7900 FIXED		
7900-8025 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.461	7900-8025 FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) Fixed G117		Page 44

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
8025-8175 EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.463 5.462A			8025-8175 EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) Mobile-satellite (Earth-to-space) (no airborne transmissions) US258 G117	8025-8400	
8175-8215 EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE 5.463 5.462A			8175-8215 EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Mobile-satellite (Earth-to-space) (no airborne transmissions) US258 G104 G117		
8215-8400 EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.463 5.462A			8215-8400 EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) Mobile-satellite (Earth-to-space) (no airborne transmissions) US258 G117	US258	
8400-8500 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) 5.465 5.466			8400-8450 FIXED SPACE RESEARCH (deep space) (space-to-Earth)	8400-8450 Space research (deep space) (space-to-Earth)	
			8450-8500 FIXED SPACE RESEARCH (space-to-Earth)	8450-8500 SPACE RESEARCH (space-to-Earth)	
8500-8550 RADIOLOCATION 5.468 5.469			8500-8550 RADIOLOCATION G59	8500-8550 Radiolocation	Private Land Mobile (90)
8550-8650 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.468 5.469 5.469A			8550-8650 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G59 SPACE RESEARCH (active)	8550-8650 Earth exploration-satellite (active) Radiolocation Space research (active)	

8650-8750 RADIOLOCATION 5.468 5.469	8650-9000 RADIOLOCATION G59 US53	8650-9000 Radiolocation US53	Aviation (87) Private Land Mobile (90)
8750-8850 RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.470 5.471			
8850-9000 RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.473			
9000-9200 AERONAUTICAL RADIONAVIGATION 5.337 RADIOLOCATION 5.471 5.473A	9000-9200 AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation G2 US48 G19	9000-9200 AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation US48	
9200-9300 RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.473 5.474	9200-9300 MARITIME RADIONAVIGATION 5.472 Radiolocation US110 G59 5.474	9200-9300 MARITIME RADIONAVIGATION 5.472 Radiolocation US110 5.474	Maritime (80) Private Land Mobile (90)
9300-9500 EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION RADIONAVIGATION 5.427 5.474 5.475 5.475A 5.475B 5.476A	9300-9500 RADIONAVIGATION US66 Radiolocation US51 G56 Meteorological aids 5.427 5.474 US67 US71	9300-9500 RADIONAVIGATION US66 Radiolocation US51 Meteorological aids 5.427 5.474 US67 US71	Maritime (80) Aviation (87) Private Land Mobile (90)
9500-9800 EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION RADIONAVIGATION 5.476A	9500-9800 EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION	9500-9800 Earth exploration-satellite (active) Space research (active) Radiolocation	Private Land Mobile (90)
9800-9900 RADIOLOCATION Earth exploration-satellite (active) Space research (active) Fixed 5.477 5.478 5.478A 5.478B	9800-10000 RADIOLOCATION 5.479	9800-10000 Radiolocation 5.479	
9900-10000 RADIOLOCATION Fixed 5.477 5.478 5.479			

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
10-10.45 FIXED MOBILE RADIOLOCATION Amateur 5.479	10-10.45 RADIOLOCATION Amateur 5.479 5.480	10-10.45 FIXED MOBILE RADIOLOCATION Amateur 5.479	10-10.45 RADIOLOCATION US58 US108 G2 5.479	10-10.45 Amateur Radiolocation US108 5.479 US58 NG42	Private Land Mobile (90) Amateur Radio (97)
10.45-10.5 RADIOLOCATION Amateur Amateur-satellite 5.481				10.45-10.5 Amateur Amateur-satellite Radiolocation US108 US58 NG42	
10.5-10.55 FIXED MOBILE Radiolocation	10.5-10.55 FIXED MOBILE RADIOLOCATION		10.5-10.55 RADIOLOCATION US59		Private Land Mobile (90)
10.55-10.6 FIXED MOBILE except aeronautical mobile Radiolocation			10.55-10.6	10.55-10.6 FIXED	Fixed Microwave (101)
10.6-10.68 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) Radiolocation 5.149 5.482 5.482A			10.6-10.68 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) US265 US277	10.6-10.68 EARTH EXPLORATION-SATELLITE (passive) FIXED US265 SPACE RESEARCH (passive) US277	
10.68-10.7 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.483			10.68-10.7 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) US246 US355		
10.7-11.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A (Earth-to-space) 5.484 MOBILE except aeronautical mobile	10.7-11.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile		10.7-11.7 US211	10.7-11.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 US211 US355 NG104 NG182 NG186	Satellite Communications (25) Fixed Microwave (101)
11.7-12.5 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 5.492	11.7-12.1 FIXED 5.486 FIXED-SATELLITE (space-to-Earth) 5.484A 5.488 Mobile except aeronautical mobile 5.485	11.7-12.2 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 5.492 5.487 5.487A	11.7-12.2	11.7-12.2 FIXED-SATELLITE (space-to-Earth) 5.485 5.488 NG143 NG183 NG187 NG184	Satellite Communications (25)
	12.1-12.2 FIXED-SATELLITE (space-to-Earth) 5.484A 5.488 5.485 5.489				

5.487 5.487A	12.2-12.7 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 5.492 5.487A 5.488 5.490	12.2-12.5 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile BROADCASTING 5.484A 5.487	12.2-12.75	12.2-12.7 FIXED BROADCASTING-SATELLITE 5.487A 5.488 5.490	Satellite Communications (25) Fixed Microwave (101)
12.5-12.75 FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.494 5.495 5.496	12.7-12.75 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile	12.5-12.75 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A MOBILE except aeronautical mobile BROADCASTING-SATELLITE 5.493		12.7-12.75 FIXED NG118 FIXED-SATELLITE (Earth-to-space) MOBILE	TV Broadcast Auxiliary (74F) Cable TV Relay (78) Fixed Microwave (101)
12.75-13.25 FIXED FIXED-SATELLITE (Earth-to-space) 5.441 MOBILE Space research (deep space) (space-to-Earth)			12.75-13.25 US251	12.75-13.25 FIXED NG118 FIXED-SATELLITE (Earth-to-space) 5.441 NG104 MOBILE US251 NG53	Satellite Communications (25) TV Broadcast Auxiliary (74F) Cable TV Relay (78) Fixed Microwave (101)
13.25-13.4 EARTH EXPLORATION-SATELLITE (active) AERONAUTICAL RADIONAVIGATION 5.497 SPACE RESEARCH (active) 5.498A 5.499			13.25-13.4 EARTH EXPLORATION-SATELLITE (active) AERONAUTICAL RADIONAVIGATION 5.497 SPACE RESEARCH (active) 5.498A	13.25-13.4 AERONAUTICAL RADIONAVIGATION 5.497 Earth exploration-satellite (active) Space research (active)	Aviation (87)
13.4-13.75 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.501A Standard frequency and time signal-satellite (Earth-to-space) 5.499 5.500 5.501 5.501B			13.4-13.75 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G59 SPACE RESEARCH 5.501A Standard frequency and time signal-satellite (Earth-to-space) 5.501B	13.4-13.75 Earth exploration-satellite (active) Radiolocation Space research Standard frequency and time signal-satellite (Earth-to-space)	Private Land Mobile (90)
13.75-14 FIXED-SATELLITE (Earth-to-space) 5.484A RADIOLOCATION Earth exploration-satellite Standard frequency and time signal-satellite (Earth-to-space) Space research 5.499 5.500 5.501 5.502 5.503			13.75-14 RADIOLOCATION G59 Standard frequency and time signal-satellite (Earth-to-space) Space research US337 US356 US357	13.75-14 FIXED-SATELLITE (Earth-to-space) US337 Standard frequency and time signal-satellite (Earth-to-space) Space research Radiolocation US356 US357	Satellite Communications (25) Private Land Mobile (90) Page 48

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
14-14.25 FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.504C 5.506A Space research 5.504A 5.505			14-14.2 Space research	14-14.2 FIXED-SATELLITE (Earth-to-space) NG183 NG187 Mobile-satellite (Earth-to-space) Space research	Satellite Communications (25)
14.25-14.3 FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.508A Space research 5.504A 5.505 5.508			14.2-14.4	14.2-14.47 FIXED-SATELLITE (Earth-to-space) NG183 NG187 Mobile-satellite (Earth-to-space) NG184	
14.3-14.4 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radionavigation-satellite 5.504A	14.3-14.4 FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506 5.506B Mobile-satellite (Earth-to-space) 5.506A Radionavigation-satellite 5.504A	14.3-14.4 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radionavigation-satellite 5.504A			
14.4-14.47 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Space research (space-to-Earth) 5.504A			14.4-14.47 Fixed Mobile		
14.47-14.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radio astronomy 5.149 5.504A			14.47-14.5 Fixed Mobile US203 US342	14.47-14.5 FIXED-SATELLITE (Earth-to-space) NG183 NG187 Mobile-satellite (Earth-to-space) US203 US342	
14.5-14.8 FIXED FIXED-SATELLITE (Earth-to-space) 5.510 MOBILE Space research			14.5-14.7145 FIXED Mobile Space research	14.5-14.8	
			14.7145-14.8 MOBILE Fixed Space research		
14.8-15.35 FIXED MOBILE Space research			14.8-15.1365 MOBILE SPACE RESEARCH Fixed US310	14.8-15.1365 US310	

5.339			15.1365-15.35 FIXED SPACE RESEARCH Mobile 5.339 US211	15.1365-15.35 5.339 US211	
15.35-15.4 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.511			15.35-15.4 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) US246		
15.4-15.43 AERONAUTICAL RADIONAVIGATION 5.511D			15.4-15.43 AERONAUTICAL RADIONAVIGATION US260 US211		Aviation (87)
15.43-15.63 FIXED-SATELLITE (Earth-to-space) 5.511A AERONAUTICAL RADIONAVIGATION 5.511C			15.43-15.63 AERONAUTICAL RADIONAVIGATION US260 5.511C US211 US359	15.43-15.63 FIXED-SATELLITE (Earth-to-space) AERONAUTICAL RADIONAVIGATION US260 5.511C US211 US359	Satellite Communications (25) Aviation (87)
15.63-15.7 AERONAUTICAL RADIONAVIGATION 5.511D			15.63-15.7 AERONAUTICAL RADIONAVIGATION US260 US211		Aviation (87)
15.7-16.6 RADIOLOCATION 5.512 5.513			15.7-16.6 RADIOLOCATION G59	15.7-17.2 Radiolocation	Private Land Mobile (90)
16.6-17.1 RADIOLOCATION Space research (deep space) (Earth-to-space) 5.512 5.513			16.6-17.1 RADIOLOCATION G59 Space research (deep space) (Earth-to-space)		
17.1-17.2 RADIOLOCATION 5.512 5.513			17.1-17.2 RADIOLOCATION G59		
17.2-17.3 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.512 5.513 5.513A			17.2-17.3 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G59 SPACE RESEARCH (active)	17.2-17.3 Earth exploration-satellite (active) Radiolocation Space research (active)	
17.3-17.7 FIXED-SATELLITE (Earth-to-space) 5.516 (space-to-Earth) 5.516A 5.516B Radiolocation 5.514	17.3-17.7 FIXED-SATELLITE (Earth-to-space) 5.516 BROADCASTING-SATELLITE Radiolocation 5.514 5.515	17.3-17.7 FIXED-SATELLITE (Earth-to-space) 5.516 Radiolocation 5.514	17.3-17.7 Radiolocation US259 G59 US402 G117	17.3-17.7 FIXED-SATELLITE (Earth-to-space) US271 BROADCASTING-SATELLITE US402 NG163 US259	Satellite Communications (25)

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
17.7-18.1 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.516 MOBILE	17.7-17.8 FIXED FIXED-SATELLITE (space-to-Earth) 5.517 (Earth-to-space) 5.516 BROADCASTING-SATELLITE Mobile 5.515	17.7-18.1 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.516 MOBILE	17.7-17.8 US401	17.7-17.8 FIXED NG144 FIXED-SATELLITE (Earth-to-space) US271 US401	Satellite Communications (25) TV Broadcast Auxiliary (74F) Cable TV Relay (78) Fixed Microwave (101)
	17.8-18.1 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) 5.516 MOBILE 5.519		17.8-18.3 FIXED-SATELLITE (space-to-Earth) US334 G117 US519	17.8-18.3 FIXED NG144 US519 US334	TV Broadcast Auxiliary (74F) Cable TV Relay (78) Fixed Microwave (101)
18.1-18.4 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B (Earth-to-space) 5.520 MOBILE 5.519 5.521			18.3-18.6 FIXED-SATELLITE (space-to-Earth) US334 G117	18.3-18.6 FIXED-SATELLITE (space-to-Earth) NG164 US334 NG144	Satellite Communications (25)
18.4-18.6 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B MOBILE					
18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) 5.522B MOBILE except aeronautical mobile Space research (passive) 5.522A 5.522C	18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) 5.516B 5.522B MOBILE except aeronautical mobile SPACE RESEARCH (passive) 5.522A	18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) 5.522B MOBILE except aeronautical mobile Space research (passive) 5.522A	18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (space-to-Earth) US255 US334 G117 SPACE RESEARCH (passive) US254	18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (space-to-Earth) US255 NG164 SPACE RESEARCH (passive) US254 US334 NG144	
18.8-19.3 FIXED FIXED-SATELLITE (space-to-Earth) 5.516B 5.523A MOBILE			18.8-20.2 FIXED-SATELLITE (space-to-Earth) US334 G117	18.8-19.3 FIXED-SATELLITE (space-to-Earth) NG165 US334 NG144	
19.3-19.7 FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) 5.523B 5.523C 5.523D 5.523E MOBILE				19.3-19.7 FIXED NG144 FIXED-SATELLITE (space-to-Earth) NG166 US334	Satellite Communications (25) TV Broadc't Auxiliary (74F) Cable TV Relay (78) Fixed Microwave (101)
19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B Mobile-satellite (space-to-Earth) 5.524	19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B MOBILE-SATELLITE (space-to-Earth) 5.524 5.525 5.526 5.527 5.528 5.529	19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B Mobile-satellite (space-to-Earth) 5.524		19.7-20.1 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.525 5.526 5.527 5.528 5.529 US334	Satellite Communications (25)

Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	FCC Rule Part(s)
20.1-20.2 FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B MOBILE-SATELLITE (space-to-Earth) 5.524 5.525 5.526 5.527 5.528				20.1-20.2 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.525 5.526 5.527 5.528 US334	
20.2-21.2 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Standard frequency and time signal-satellite (space-to-Earth) 5.524			20.2-21.2 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Standard frequency and time signal-satellite (space-to-Earth) G117	20.2-21.2 Standard frequency and time signal-satellite (space-to-Earth)	
21.2-21.4 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)			21.2-21.4 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) US263		Fixed Microwave (101)
21.4-22 FIXED MOBILE BROADCASTING-SATELLITE 5.208B 5.530	21.4-22 FIXED MOBILE	21.4-22 FIXED MOBILE BROADCASTING-SATELLITE 5.208B 5.530 5.531	21.4-22 FIXED MOBILE		
22-22.21 FIXED MOBILE except aeronautical mobile 5.149			22-22.21 FIXED MOBILE except aeronautical mobile US342		
22.21-22.5 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) 5.149 5.532			22.21-22.5 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) US263 US342		
22.5-22.55 FIXED MOBILE			22.5-22.55 FIXED MOBILE US211		
22.55-23.55 FIXED INTER-SATELLITE 5.338A MOBILE 5.149			22.55-23.55 FIXED INTER-SATELLITE US278 MOBILE US342		Satellite Communications (25) Fixed Microwave (101)
23.55-23.6 FIXED MOBILE			23.55-23.6 FIXED MOBILE		Fixed Microwave (101)

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
23.6-24 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340			23.6-24 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) US246		
24-24.05 AMATEUR AMATEUR-SATELLITE 5.150			24-24.05 5.150 US211	24-24.05 AMATEUR AMATEUR-SATELLITE 5.150 US211	ISM Equipment (18) Amateur Radio (97)
24.05-24.25 RADIOLOCATION Amateur Earth exploration-satellite (active) 5.150			24.05-24.25 RADIOLOCATION G59 Earth exploration-satellite (active) 5.150	24.05-24.25 Amateur Earth exploration-satellite (active) Radiolocation 5.150	ISM Equipment (18) Private Land Mobile (90) Amateur Radio (97)
24.25-24.45 FIXED	24.25-24.45 RADIONAVIGATION	24.25-24.45 RADIONAVIGATION FIXED MOBILE	24.25-24.45	24.25-24.45 FIXED	Fixed Microwave (101)
24.45-24.75 FIXED INTER-SATELLITE	24.45-24.65 INTER-SATELLITE RADIONAVIGATION 5.533	24.45-24.65 FIXED INTER-SATELLITE MOBILE RADIONAVIGATION 5.533	24.45-24.65 INTER-SATELLITE RADIONAVIGATION 5.533		Satellite Communications (25)
	24.65-24.75 INTER-SATELLITE RADIOLOCATION-SATELLITE (Earth-to-space)	24.65-24.75 FIXED INTER-SATELLITE MOBILE 5.533	24.65-24.75 INTER-SATELLITE RADIOLOCATION-SATELLITE (Earth-to-space)		
24.75-25.25 FIXED	24.75-25.25 FIXED-SATELLITE (Earth-to-space) 5.535	24.75-25.25 FIXED FIXED-SATELLITE (Earth-to-space) 5.535 MOBILE	24.75-25.05 RADIONAVIGATION	24.75-25.05 FIXED-SATELLITE (Earth-to-space) NG167 RADIONAVIGATION	Satellite Communications (25) Aviation (87)
			25.05-25.25	25.05-25.25 FIXED FIXED-SATELLITE (Earth-to-space) NG167	Satellite Communications (25) Fixed Microwave (101)
25.25-25.5 FIXED INTER-SATELLITE 5.536 MOBILE Standard frequency and time signal-satellite (Earth-to-space)			25.25-25.5 FIXED INTER-SATELLITE 5.536 MOBILE Standard frequency and time signal-satellite (Earth-to-space)	25.25-25.5 Inter-satellite 5.536 Standard frequency and time signal-satellite (Earth-to-space)	

Region 1	Region 2	Region 3	Federal	Non-Federal	FCC Rule Part(s)
25.5-27 EARTH EXPLORATION-SATELLITE (space-to-Earth) 5.536B FIXED INTER-SATELLITE 5.536 MOBILE SPACE RESEARCH (space-to-Earth) 5.536C Standard frequency and time signal-satellite (Earth-to-space) 5.536A			25.5-27 EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED INTER-SATELLITE 5.536 MOBILE SPACE RESEARCH (space-to-Earth) Standard frequency and time signal-satellite (Earth-to-space) 5.536A US258	25.5-27 Inter-satellite 5.536 Standard frequency and time signal-satellite (Earth-to-space) 5.536A US258	
27-27.5 FIXED INTER-SATELLITE 5.536 MOBILE	27-27.5 FIXED FIXED-SATELLITE (Earth-to-space) INTER-SATELLITE 5.536 5.537 MOBILE		27-27.5 FIXED INTER-SATELLITE 5.536 MOBILE	27-27.5 Inter-satellite 5.536	
27.5-28.5 FIXED 5.537A FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 MOBILE 5.538 5.540			27.5-30	27.5-29.5 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE	Satellite Communications (25) Fixed Microwave (101)
28.5-29.1 FIXED FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.523A 5.539 MOBILE Earth exploration-satellite (Earth-to-space) 5.541 5.540					
29.1-29.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.516B 5.523C 5.523E 5.535A 5.539 5.541A MOBILE Earth exploration-satellite (Earth-to-space) 5.541 5.540					
29.5-29.9 FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 Earth exploration-satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space) 5.540 5.542	29.5-29.9 FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) 5.541 5.525 5.526 5.527 5.529 5.540 5.542	29.5-29.9 FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 Earth exploration-satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space) 5.540 5.542		29.5-29.9 FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) 5.525 5.526 5.527 5.529	Satellite Communications (25)
29.9-30 FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) 5.541 5.543 5.525 5.526 5.527 5.538 5.540 5.542				29.9-30 FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) 5.525 5.526 5.527 5.543	

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
30-31 FIXED-SATELLITE (Earth-to-space) 5.338A MOBILE-SATELLITE (Earth-to-space) Standard frequency and time signal-satellite (space-to-Earth) 5.542			30-31 FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) Standard frequency and time signal-satellite (space-to-Earth) G117	30-31 Standard frequency and time signal-satellite (space-to-Earth)	
31-31.3 FIXED 5.338A 5.543A MOBILE Standard frequency and time signal-satellite (space-to-Earth) Space research 5.544 5.545 5.149			31-31.3 Standard frequency and time signal-satellite (space-to-Earth) US211 US342	31-31.3 FIXED MOBILE Standard frequency and time signal-satellite (space-to-Earth) US211 US342	Fixed Microwave (101)
31.3-31.5 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340			31.3-31.8 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) US246		
31.5-31.8 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.546	31.5-31.8 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	31.5-31.8 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149			
31.8-32 FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 5.547 5.547B 5.548			31.8-32.3 RADIONAVIGATION US69 SPACE RESEARCH (deep space) (space-to-Earth) US262 5.548 US211	31.8-32.3 SPACE RESEARCH (deep space) (space-to-Earth) US262 5.548 US211	
32-32.3 FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 5.547 5.547C 5.548					
32.3-33 FIXED 5.547A INTER-SATELLITE RADIONAVIGATION 5.547 5.547D 5.548			32.3-33 INTER-SATELLITE US278 RADIONAVIGATION US69 5.548		Aviation (87)
33-33.4 FIXED 5.547A RADIONAVIGATION 5.547 5.547E			33-33.4 RADIONAVIGATION US69 US360 G117		

International Table	Federal Table	Non-Federal Table	FCC Rule Part(s)
33.4-34.2 RADIOLOCATION 5.549	33.4-34.2 RADIOLOCATION US360 G117	33.4-34.2 Radiolocation US360	Private Land Mobile (90)
34.2-34.7 RADIOLOCATION SPACE RESEARCH (deep space) (Earth-to-space) 5.549	34.2-34.7 RADIOLOCATION SPACE RESEARCH (deep space) (Earth-to-space) US262 US360 G34 G117	34.2-34.7 Radiolocation Space research (deep space) (Earth-to-space) US262 US360	
34.7-35.2 RADIOLOCATION Space research 5.550 5.549	34.7-35.5 RADIOLOCATION	34.7-35.5 Radiolocation	
35.2-35.5 METEOROLOGICAL AIDS RADIOLOCATION 5.549	US360 G117	US360	
35.5-36 METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.549 5.549A	35.5-36 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) US360 G117	35.5-36 Earth exploration-satellite (active) Radiolocation Space research (active) US360	
36-37 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.149 5.550A	36-37 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) US263 US342		
37-37.5 FIXED MOBILE SPACE RESEARCH (space-to-Earth) 5.547	37-38 FIXED MOBILE SPACE RESEARCH (space-to-Earth)	37-37.5 FIXED MOBILE	
37.5-38 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE SPACE RESEARCH (space-to-Earth) Earth exploration-satellite (space-to-Earth) 5.547		37.5-38.6 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	Satellite Communications (25)
38-39.5 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Earth exploration-satellite (space-to-Earth) 5.547	38-38.6 FIXED MOBILE		
	38.6-39.5	38.6-39.5 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE NG175	Satellite Communications (25) Fixed Microwave (101)

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
39.5-40 FIXED FIXED-SATELLITE (space-to-Earth) 5.516B MOBILE MOBILE-SATELLITE (space-to-Earth) Earth exploration-satellite (space-to-Earth) 5.547			39.5-40 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) US382 G117	39.5-40 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE NG175 US382	Satellite Communications (25) Fixed Microwave (101)
40-40.5 EARTH EXPLORATION-SATELLITE (Earth-to-space) FIXED FIXED-SATELLITE (space-to-Earth) 5.516B MOBILE MOBILE-SATELLITE (space-to-Earth) SPACE RESEARCH (Earth-to-space) Earth exploration-satellite (space-to-Earth)			40-40.5 EARTH EXPLORATION-SATELLITE (Earth-to-space) FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) SPACE RESEARCH (Earth-to-space) Earth exploration-satellite (space-to-Earth) G117	40-40.5 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth)	Satellite Communications (25)
40.5-41 FIXED FIXED-SATELLITE (space-to-Earth) BROADCASTING BROADCASTING-SATELLITE Mobile 5.547	40.5-41 FIXED FIXED-SATELLITE (space-to-Earth) 5.516B BROADCASTING BROADCASTING-SATELLITE Mobile Mobile-satellite (space-to-Earth) 5.547	40.5-41 FIXED FIXED-SATELLITE (space-to-Earth) BROADCASTING BROADCASTING-SATELLITE Mobile 5.547	40.5-41 FIXED-SATELLITE (space-to-Earth) Mobile-satellite (space-to-Earth) US211 G117	40.5-41 FIXED-SATELLITE (space-to-Earth) BROADCASTING BROADCASTING-SATELLITE Fixed Mobile Mobile-satellite (space-to-Earth) US211	
41-42.5 FIXED FIXED-SATELLITE (space-to-Earth) 5.516B BROADCASTING BROADCASTING-SATELLITE Mobile 5.547 5.551F 5.551H 5.551I			41-42.5 US211	41-42 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE BROADCASTING BROADCASTING-SATELLITE US211	
				42-42.5 FIXED MOBILE BROADCASTING BROADCASTING-SATELLITE US211	
42.5-43.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149 5.547			42.5-43.5 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile RADIO ASTRONOMY US342	42.5-43.5 RADIO ASTRONOMY US342	

International	International (cont.)	Federal	Non-Federal	FCC Rule Part(s)
43.5-47 MOBILE 5.553 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554		43.5-45.5 FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) G117	43.5-45.5	
		45.5-46.9 MOBILE MOBILE-SATELLITE (Earth-to-space) RADIONAVIGATION-SATELLITE 5.554		RF Devices (15)
		46.9-47 MOBILE MOBILE-SATELLITE (Earth-to-space) RADIONAVIGATION-SATELLITE 5.554	46.9-47 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) RADIONAVIGATION-SATELLITE 5.554	
47-47.2 AMATEUR AMATEUR-SATELLITE		47-48.2	47-47.2 AMATEUR AMATEUR-SATELLITE	Amateur Radio (97)
47.2-47.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.552A			47.2-48.2 FIXED FIXED-SATELLITE (Earth-to-space) US297 MOBILE	Satellite Communications (25)
47.5-47.9 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 (space-to-Earth) 5.516B 5.554A MOBILE	47.5-47.9 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE			
47.9-48.2 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.552A				
48.2-48.54 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 (space-to-Earth) 5.516B 5.554A 5.555B MOBILE	48.2-50.2 FIXED FIXED-SATELLITE (Earth-to-space) 5.338A 5.516B 5.552 MOBILE 5.149 5.340 5.555	48.2-50.2 FIXED FIXED-SATELLITE (Earth-to-space) US297 MOBILE US264 5.555 US342		
48.54-49.44 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE 5.149 5.340 5.555				

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
49.44-50.2 FIXED FIXED-SATELLITE (Earth-to-space) 5.338A 5.552 (space-to-Earth) 5.516B 5.554A 5.555B MOBILE	(See previous page)		(See previous page)		
50.2-50.4 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340			50.2-50.4 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) US246		
50.4-51.4 FIXED FIXED-SATELLITE (Earth-to-space) 5.338A MOBILE Mobile-satellite (Earth-to-space)			50.4-51.4 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE MOBILE-SATELLITE (Earth-to-space) G117	50.4-51.4 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE MOBILE-SATELLITE (Earth-to-space)	
51.4-52.6 FIXED 5.338A MOBILE 5.547 5.556			51.4-52.6 FIXED MOBILE		
52.6-54.25 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340 5.556			52.6-54.25 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) US246		
54.25-55.78 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.556A SPACE RESEARCH (passive) 5.556B			54.25-55.78 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.556A SPACE RESEARCH (passive)		Satellite Communications (25)
55.78-56.9 EARTH EXPLORATION-SATELLITE (passive) FIXED 5.557A INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547 5.557			55.78-56.9 EARTH EXPLORATION-SATELLITE (passive) FIXED US379 INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) US263 US353		
56.9-57 EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.558A MOBILE 5.558 SPACE RESEARCH (passive) 5.547 5.557			56.9-57 EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE G128 MOBILE 5.558 SPACE RESEARCH (passive) US263	56.9-57 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE 5.558 SPACE RESEARCH (passive) US263	

57-58.2 EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547 5.557	57-58.2 EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) US263		RF Devices (15) Satellite Communications (25)
58.2-59 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.547 5.556	58.2-59 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) US353 US354		RF Devices (15)
59-59.3 EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 RADIOLOCATION 5.559 SPACE RESEARCH (passive)	59-59.3 EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 RADIOLOCATION 5.559 SPACE RESEARCH (passive) US353	59-59.3 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE 5.558 RADIOLOCATION 5.559 SPACE RESEARCH (passive) US353	
59.3-64 FIXED INTER-SATELLITE MOBILE 5.558 RADIOLOCATION 5.559 5.138	59.3-64 FIXED INTER-SATELLITE MOBILE 5.558 RADIOLOCATION 5.559 5.138 US353	59.3-64 FIXED MOBILE 5.558 RADIOLOCATION 5.559 5.138 US353	RF Devices (15) ISM Equipment (18)
64-65 FIXED INTER-SATELLITE MOBILE except aeronautical mobile 5.547 5.556	64-65 FIXED INTER-SATELLITE MOBILE except aeronautical mobile	64-65 FIXED MOBILE except aeronautical mobile	
65-66 EARTH EXPLORATION-SATELLITE FIXED INTER-SATELLITE MOBILE except aeronautical mobile SPACE RESEARCH 5.547	65-66 EARTH EXPLORATION-SATELLITE FIXED MOBILE except aeronautical mobile SPACE RESEARCH	65-66 EARTH EXPLORATION-SATELLITE FIXED INTER-SATELLITE MOBILE except aeronautical mobile SPACE RESEARCH	Satellite Communications (25)
66-71 INTER-SATELLITE MOBILE 5.553 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554	66-71 MOBILE 5.553 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554	66-71 INTER-SATELLITE MOBILE 5.553 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554	Page 60

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
71-74 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth)			71-74 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) US389		Fixed Microwave (101)
74-76 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE BROADCASTING BROADCASTING-SATELLITE Space research (space-to-Earth) 5.561			74-76 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Space research (space-to-Earth) US389	74-76 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE BROADCASTING BROADCASTING-SATELLITE Space research (space-to-Earth) US389	
76-77.5 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) 5.149			76-77.5 RADIO ASTRONOMY RADIOLOCATION Space research (space-to-Earth) US342	76-77 RADIO ASTRONOMY RADIOLOCATION Amateur Space research (space-to-Earth) US342	RF Devices (15)
				77-77.5 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) US342	Amateur Radio (97)
77.5-78 AMATEUR AMATEUR-SATELLITE Radio astronomy Space research (space-to-Earth) 5.149			77.5-78 Radio astronomy Space research (space-to-Earth) US342	77.5-78 AMATEUR AMATEUR-SATELLITE Radio astronomy Space research (space-to-Earth) US342	
78-79 RADIOLOCATION Amateur Amateur-satellite Radio astronomy Space research (space-to-Earth) 5.149 5.560			78-79 RADIO ASTRONOMY RADIOLOCATION Space research (space-to-Earth) 5.560 US342	78-79 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) 5.560 US342	
79-81 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) 5.149			79-81 RADIO ASTRONOMY RADIOLOCATION Space research (space-to-Earth) US342	79-81 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) US342	

81-84 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY Space research (space-to-Earth) 5.149 5.561A	81-84 FIXED FIXED-SATELLITE (Earth-to-space) US297 MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY Space research (space-to-Earth) US342 US388 US389		Fixed Microwave (101)
84-86 FIXED FIXED-SATELLITE (Earth-to-space) 5.561B MOBILE RADIO ASTRONOMY 5.149	84-86 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY US342 US388 US389		
86-92 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	86-92 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) US246		
92-94 FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149	92-94 FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION US342 US388		RF Devices (15) Fixed Microwave (101)
94-94.1 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) Radio astronomy 5.562 5.562A	94-94.1 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) Radio astronomy 5.562 5.562A	94-94.1 RADIOLOCATION Radio astronomy 5.562A	RF Devices (15)
94.1-95 FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149	94.1-95 FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION US342 US388		RF Devices (15) Fixed Microwave (101)
95-100 FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.554	95-100 FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554 US342		Page 62

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
100-102 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341			100-102 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) 5.341 US246		
102-105 FIXED MOBILE RADIO ASTRONOMY 5.149 5.341			102-105 FIXED MOBILE RADIO ASTRONOMY 5.341 US342		
105-109.5 FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341			105-109.5 FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.341 US342		
109.5-111.8 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341			109.5-111.8 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) 5.341 US246		
111.8-114.25 FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341			111.8-114.25 FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.341 US342		
114.25-116 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341			114.25-116 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) 5.341 US246		
116-119.98 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562C SPACE RESEARCH (passive) 5.341			116-122.25 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562C SPACE RESEARCH (passive) 5.138 5.341 US211		ISM Equipment (18)
119.98-122.25 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562C SPACE RESEARCH (passive) 5.138 5.341					

122.25-123 FIXED INTER-SATELLITE MOBILE 5.558 Amateur 5.138	122.25-123 FIXED INTER-SATELLITE MOBILE 5.558 5.138	122.25-123 FIXED INTER-SATELLITE MOBILE 5.558 Amateur 5.138	ISM Equipment (18) Amateur Radio (97)
123-130 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) RADIONAVIGATION RADIONAVIGATION-SATELLITE Radio astronomy 5.562D 5.149 5.554	123-130 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) RADIONAVIGATION RADIONAVIGATION-SATELLITE Radio astronomy 5.554 US211 US342		
130-134 EARTH EXPLORATION-SATELLITE (active) 5.562E FIXED INTER-SATELLITE MOBILE 5.558 RADIO ASTRONOMY 5.149 5.562A	130-134 EARTH EXPLORATION-SATELLITE (active) 5.562E FIXED INTER-SATELLITE MOBILE 5.558 RADIO ASTRONOMY 5.562A US342		
134-136 AMATEUR AMATEUR-SATELLITE Radio astronomy	134-136 Radio astronomy	134-136 AMATEUR AMATEUR-SATELLITE Radio astronomy	Amateur Radio (97)
136-141 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.149	136-141 RADIO ASTRONOMY RADIOLOCATION US342	136-141 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite US342	
141-148.5 FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149	141-148.5 FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION US342		
148.5-151.5 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	148.5-151.5 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) US246		
151.5-155.5 FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149	151.5-155.5 FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION US342		

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
155.5-158.5 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.562F 5.562G			155.5-158.5 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.562F 5.562G US342		
158.5-164 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth)			158.5-164 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) US211		
164-167 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340			164-167 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) US246		
167-174.5 FIXED FIXED-SATELLITE (space-to-Earth) INTER-SATELLITE MOBILE 5.558 5.149 5.562D			167-174.5 FIXED FIXED-SATELLITE (space-to-Earth) INTER-SATELLITE MOBILE 5.558 US211 US342		
174.5-174.8 FIXED INTER-SATELLITE MOBILE 5.558			174.5-174.8 FIXED INTER-SATELLITE MOBILE 5.558		
174.8-182 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)			174.8-182 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)		
182-185 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340			182-185 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) US246		
185-190 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)			185-190 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)		
190-191.8 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340			190-191.8 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) US246		

191.8-200 FIXED INTER-SATELLITE MOBILE 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.341 5.554	191.8-200 FIXED INTER-SATELLITE MOBILE 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.341 5.554 US211 US342	
200-209 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341 5.563A	200-209 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) 5.341 5.563A US246	
209-217 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 5.149 5.341	209-217 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 5.341 US342	
217-226 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341	217-226 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.341 US342	
226-231.5 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	226-231.5 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) US246	
231.5-232 FIXED MOBILE Radiolocation	231.5-232 FIXED MOBILE Radiolocation	
232-235 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Radiolocation	232-235 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Radiolocation	
235-238 EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (space-to-Earth) SPACE RESEARCH (passive) 5.563A 5.563B	235-238 EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (space-to-Earth) SPACE RESEARCH (passive) 5.563A 5.563B	Page 66

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
238-240 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE			238-240 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE		
240-241 FIXED MOBILE RADIOLOCATION			240-241 FIXED MOBILE RADIOLOCATION		
241-248 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.138 5.149			241-248 RADIO ASTRONOMY RADIOLOCATION 5.138 US342	241-248 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.138 US342	ISM Equipment (18) Amateur Radio (97)
248-250 AMATEUR AMATEUR-SATELLITE Radio astronomy 5.149			248-250 Radio astronomy US342	248-250 AMATEUR AMATEUR-SATELLITE Radio astronomy US342	Amateur Radio (97)
250-252 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.563A			250-252 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) 5.563A US246		
252-265 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.554			252-265 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554 US211 US342		
265-275 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 5.149 5.563A			265-275 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 5.563A US342		
275-1000 (Not allocated) 5.565			275-1000 (Not allocated) 5.565		Amateur Radio (97)

INTERNATIONAL FOOTNOTES

5.53 Administrations authorizing the use of frequencies below 9 kHz shall ensure that no harmful interference is caused thereby to the services to which the bands above 9 kHz are allocated.

5.54 Administrations conducting scientific research using frequencies below 9 kHz are urged to advise other administrations that may be concerned in order that such research may be afforded all practicable protection from harmful interference.

5.55 Additional allocation: in Armenia, Azerbaijan, the Russian Federation, Georgia, Kyrgyzstan, Tajikistan and Turkmenistan, the band 14-17 kHz is also allocated to the radionavigation service on a primary basis. (WRC-07)

5.56 The stations of services to which the bands 14-19.95 kHz and 20.05-70 kHz and in Region 1 also the bands 72-84 kHz and 86-90 kHz are allocated may transmit standard frequency and time signals. Such stations shall be afforded protection from harmful interference. In Armenia, Azerbaijan, Belarus, Bulgaria, the Russian Federation, Georgia, Kazakhstan, Mongolia, Kyrgyzstan, Slovakia, Tajikistan and Turkmenistan, the frequencies 25 kHz and 50 kHz will be used for this purpose under the same conditions. (WRC-07)

5.57 The use of the bands 14-19.95 kHz, 20.05-70 kHz and 70-90 kHz (72-84 kHz and 86-90 kHz in Region 1) by the maritime mobile service is limited to coast radiotelegraph stations (A1A and F1B only). Exceptionally, the use of class J2B or J7B emissions is authorized subject to the necessary bandwidth not exceeding that normally used for class A1A or F1B emissions in the band concerned.

5.58 Additional allocation: in Armenia, Azerbaijan, the Russian Federation, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan and Turkmenistan, the band 67-70 kHz is also allocated to the radionavigation service on a primary basis.

5.59 Different category of service: in Bangladesh and Pakistan, the allocation of the bands 70-72 kHz and 84-86 kHz to the fixed and maritime mobile services is on a primary basis (see No. 5.33).

5.60 In the bands 70-90 kHz (70-86 kHz in Region 1) and 110-130 kHz (112-130 kHz in Region 1), pulsed radionavigation systems may be used on condition that they do not cause harmful interference to other services to which these bands are allocated.

5.61 In Region 2, the establishment and operation of stations in the maritime radionavigation service in the bands 70-90 kHz and 110-130 kHz shall be subject to agreement obtained under No. 9.21 with administrations whose services, operating in accordance with the Table, may be affected. However, stations of the fixed, maritime mobile and radiolocation services shall not cause harmful interference to stations in the maritime radionavigation service established under such agreements.

5.62 Administrations which operate stations in the radionavigation service in the band 90-110 kHz are urged to coordinate technical and operating characteristics in such a way as to avoid harmful interference to the services provided by these stations.

5.64 Only classes A1A or F1B, A2C, A3C, F1C or F3C emissions are authorized for stations of the fixed service in the bands allocated to this service between 90 kHz and 160 kHz (148.5 kHz in Region 1) and for stations of the maritime mobile service in the bands allocated to this service between 110 kHz and 160 kHz (148.5 kHz in Region 1). Exceptionally, class J2B or J7B emissions are also authorized in the bands between 110 kHz and 160 kHz (148.5 kHz in Region 1) for stations of the maritime mobile service.

5.65 Different category of service: in Bangladesh, the allocation of the bands 112-117.6 kHz and 126-129 kHz to the fixed and maritime mobile services is on a primary basis (see No. 5.33).

5.66 Different category of service: in Germany, the allocation of the band 115-117.6 kHz to the fixed and maritime mobile services is on a primary basis (see No. 5.33) and to the radionavigation service on a secondary basis (see No. 5.32).

5.67 Additional allocation: in Mongolia, Kyrgyzstan and Turkmenistan, the band 130-148.5 kHz is also allocated to the radionavigation service on a secondary basis. Within and between these countries this service shall have an equal right to operate. (WRC-07)

5.67A Stations in the amateur service using frequencies in the band 135.7-137.8 kHz shall not exceed a maximum radiated power of 1 W (e.i.r.p.) and shall not cause harmful interference to stations of the radionavigation service operating in countries listed in No. 5.67. (WRC-07)

5.67B The use of the band 135.7-137.8 kHz in Algeria, Egypt, Iran (Islamic Republic of), Iraq, Libyan Arab Jamahiriya, Lebanon, Syrian Arab Republic, Sudan and Tunisia is limited to the fixed and maritime mobile services. The amateur service shall not be used in the above-mentioned countries in the band 135.7-137.8 kHz, and this should be taken into account by the countries authorizing such use. (WRC-07)

5.68 Alternative allocation: in Angola, Burundi, Congo (Rep. of the), Malawi, the Dem. Rep. of the Congo, Rwanda and South Africa, the band 160-200 kHz is allocated to the fixed service on a primary basis.

5.69 Additional allocation: in Somalia, the band 200-255 kHz is also allocated to the aeronautical radionavigation service on a primary basis.

5.70 Alternative allocation: in Angola, Botswana, Burundi, the Central African Rep., Congo (Rep. of the), Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mozambique, Namibia, Nigeria, Oman, the Dem. Rep. of the Congo, Rwanda, South Africa, Swaziland, Tanzania, Chad, Zambia and Zimbabwe, the band 200-283.5 kHz is allocated to the aeronautical radionavigation service on a primary basis. (WRC-07)

5.71 Alternative allocation: in Tunisia, the band 255-283.5 kHz is allocated to the broadcasting service on a primary basis.

5.72 Norwegian stations of the fixed service situated in northern areas (north of 60° N) subject to auroral disturbances are allowed to continue operation on four frequencies in the bands 283.5-490 kHz and 510-526.5 kHz.

5.73 The band 285-325 kHz (283.5-325 kHz in Region 1) in the maritime radionavigation service may be used to transmit supplementary navigational information using narrow-band techniques, on condition that no harmful interference is caused to radiobeacon stations operating in the radionavigation service.

5.74 Additional Allocation: in Region 1, the frequency band 285.3-285.7 kHz is also allocated to the maritime radionavigation service (other than radiobeacons) on a primary basis.

5.75 Different category of service: in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Moldova, Kyrgyzstan, Tajikistan, Turkmenistan, Ukraine and the Black Sea areas of Romania, the allocation of the band 315-325 kHz to the maritime radionavigation service is on a primary basis under the condition that in the Baltic Sea area, the assignment of frequencies in this band to new stations in the maritime or aeronautical radionavigation services shall be subject to prior consultation between the administrations concerned. (WRC-07)

5.76 The frequency 410 kHz is designated for radio direction-finding in the maritime radionavigation service. The other radionavigation services to which the band 405-415 kHz is allocated shall not cause harmful interference to radio direction-finding in the band 406.5-413.5 kHz.

5.77 Different category of service: in Australia, China, the French overseas communities of Region 3, India, Iran (Islamic Republic of), Japan, Pakistan, Papua New Guinea and Sri Lanka, the allocation of the band 415-495 kHz to the aeronautical radionavigation service is on a primary basis. Administrations in these countries shall take all practical steps necessary to ensure that aeronautical radionavigation stations in the band 435-495 kHz do not cause interference to reception by coast stations

of ship stations transmitting on frequencies designated for ship stations on a worldwide basis (see No. 52.39). (WRC-07)

5.78 Different category of service: in Cuba, the United States of America and Mexico, the allocation of the band 415-435 kHz to the aeronautical radionavigation service is on a primary basis.

5.79 The use of the bands 415-495 kHz and 505-526.5 kHz (505-510 kHz in Region 2) by the maritime mobile service is limited to radiotelegraphy.

5.79A When establishing coast stations in the NAVTEX service on the frequencies 490 kHz, 518 kHz and 4209.5 kHz, administrations are strongly recommended to coordinate the operating characteristics in accordance with the procedures of the International Maritime Organization (IMO) (see Resolution 339 (Rev.WRC-07)). (WRC-07)

5.80 In Region 2, the use of the band 435-495 kHz by the aeronautical radionavigation service is limited to non-directional beacons not employing voice transmission.

5.82 In the maritime mobile service, the frequency 490 kHz is to be used exclusively for the transmission by coast stations of navigational and meteorological warnings and urgent information to ships, by means of narrow-band direct-printing telegraphy. The conditions for use of the frequency 490 kHz are prescribed in Articles 31 and 52. In using the band 415-495 kHz for the aeronautical radionavigation service, administrations are requested to ensure that no harmful interference is caused to the frequency 490 kHz. (WRC-07)

5.82A The use of the band 495-505 kHz is limited to radiotelegraphy. (WRC-07)

5.82B Administrations authorizing the use of frequencies in the band 495-505 kHz by services other than the maritime mobile service shall ensure that no harmful interference is caused to the maritime mobile service in this band or to the services having allocations in the adjacent bands, noting in particular the conditions of use of the frequencies 490 kHz and 518 kHz, as prescribed in Articles 31 and 52. (WRC-07)

5.84 The conditions for the use of the frequency 518 kHz by the maritime mobile service are prescribed in Articles 31 and 52. (WRC-07)

5.86 In Region 2, in the band 525-535 kHz the carrier power of broadcasting stations shall not exceed 1 kW during the day and 250 W at night.

5.87 Additional allocation: in Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland and Zimbabwe, the band 526.5-535 kHz is also allocated to the mobile service on a secondary basis.

5.87A Additional allocation: in Uzbekistan, the band 526.5-1606.5 kHz is also allocated to the radionavigation service on a primary basis. Such use is subject to agreement obtained under No. 9.21 with administrations concerned and limited to ground-based radiobeacons in operation on 27 October 1997 until the end of their lifetime.

5.88 Additional allocation: in China, the band 526.5-535 kHz is also allocated to the aeronautical radionavigation service on a secondary basis.

5.89 In Region 2, the use of the band 1605-1705 kHz by stations of the broadcasting service is subject to the Plan established by the Regional Administrative Radio Conference (Rio de Janeiro, 1988).

The examination of frequency assignments to stations of the fixed and mobile services in the band 1625-1705 kHz shall take account of the allotments appearing in the Plan established by the Regional Administrative Radio Conference (Rio de Janeiro, 1988).

5.90 In the band 1605-1705 kHz, in cases where a broadcasting station of Region 2 is concerned, the service area of the maritime mobile stations in Region 1 shall be limited to that provided by ground-wave propagation.

5.91 Additional allocation: in the Philippines and Sri Lanka, the band 1606.5-1705 kHz is also allocated to the broadcasting service on a secondary basis.

5.92 Some countries of Region 1 use radiodetermination systems in the bands 1606.5-1625 kHz, 1635-1800 kHz, 1850-2160 kHz, 2194-2300 kHz, 2502-2850 kHz and 3500-3800 kHz, subject to agreement obtained under No. 9.21. The radiated mean power of these stations shall not exceed 50 W.

5.93 Additional allocation: in Angola, Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Hungary, Kazakhstan, Latvia, Lithuania, Moldova, Mongolia, Nigeria, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Rep., Tajikistan, Chad, Turkmenistan and Ukraine, the bands 1625-1635 kHz, 1800-1810 kHz and 2160-2170 kHz are also allocated to the fixed and land mobile services on a primary basis, subject to agreement obtained under No. 9.21. (WRC-07)

5.96 In Germany, Armenia, Austria, Azerbaijan, Belarus, Denmark, Estonia, the Russian Federation, Finland, Georgia, Hungary, Ireland, Iceland, Israel, Kazakhstan, Latvia, Liechtenstein, Lithuania, Malta, Moldova, Norway, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Rep., the United Kingdom, Sweden, Switzerland, Tajikistan, Turkmenistan and Ukraine, administrations may allocate up to 200 kHz to their amateur service in the bands 1715-1800 kHz and 1850-2000 kHz. However, when allocating the bands within this range to their amateur service, administrations shall, after prior consultation with administrations of neighbouring countries, take such steps as may be necessary to prevent harmful interference from their amateur service to the fixed and mobile services of other countries. The mean power of any amateur station shall not exceed 10 W.

5.97 In Region 3, the Loran system operates either on 1850 kHz or 1950 kHz, the bands occupied being 1825-1875 kHz and 1925-1975 kHz respectively. Other services to which the band 1800-2000 kHz is allocated may use any frequency therein on condition that no harmful interference is caused to the Loran system operating on 1850 kHz or 1950 kHz.

5.98 Alternative allocation: in Angola, Armenia, Azerbaijan, Belarus, Belgium, Cameroon, Congo (Rep. of the), Denmark, Egypt, Eritrea, Spain, Ethiopia, the Russian Federation, Georgia, Greece, Italy, Kazakhstan, Lebanon, Lithuania, Moldova, the Syrian Arab Republic, Kyrgyzstan, Somalia, Tajikistan, Tunisia, Turkmenistan, Turkey and Ukraine, the band 1810-1830 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-07)

5.99 Additional allocation: in Saudi Arabia, Austria, Iraq, the Libyan Arab Jamahiriya, Uzbekistan, Slovakia, Romania, Serbia, Slovenia, Chad, and Togo, the band 1810-1830 kHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-07)

5.100 In Region 1, the authorization to use the band 1810-1830 kHz by the amateur service in countries situated totally or partially north of 40° N shall be given only after consultation with the countries mentioned in Nos. 5.98 and 5.99 to define the necessary steps to be taken to prevent harmful interference between amateur stations and stations of other services operating in accordance with Nos. 5.98 and 5.99.

5.101 Alternative allocation: in Burundi and Lesotho, the band 1810-1850 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

5.102 Alternative allocation: in Bolivia, Chile, Mexico, Paraguay, Peru and Uruguay, the band 1850-2000 kHz is allocated to the fixed, mobile except aeronautical mobile, radiolocation and radionavigation services on a primary basis. (WRC-07)

5.103 In Region 1, in making assignments to stations in the fixed and mobile services in the bands 1850-2045 kHz, 2194-2498 kHz, 2502-2625 kHz and 2650-2850 kHz, administrations should bear in mind the special requirements of the maritime mobile service.

5.104 In Region 1, the use of the band 2025-2045 kHz by the meteorological aids service is limited to oceanographic buoy stations.

5.105 In Region 2, except in Greenland, coast stations and ship stations using radiotelephony in the band 2065-2107 kHz shall be limited to class J3E emissions and to a peak envelope power not exceeding 1 kW. Preferably, the following carrier frequencies should be used: 2065.0 kHz, 2079.0 kHz, 2082.5 kHz, 2086.0 kHz, 2093.0 kHz, 2096.5 kHz, 2100.0 kHz and 2103.5 kHz. In Argentina and Uruguay, the carrier frequencies 2068.5 kHz and 2075.5 kHz are also used for this purpose, while the frequencies within the band 2072-2075.5 kHz are used as provided in No. 52.165.

5.106 In Regions 2 and 3, provided no harmful interference is caused to the maritime mobile service, the frequencies between 2065 kHz and 2107 kHz may be used by stations of the fixed service communicating only within national borders and whose mean power does not exceed 50 W. In notifying the frequencies, the attention of the Bureau should be drawn to these provisions.

5.107 Additional allocation: in Saudi Arabia, Eritrea, Ethiopia, Iraq, the Libyan Arab Jamahiriya, Lesotho, Somalia and Swaziland, the band 2160-2170 kHz is also allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis. The mean power of stations in these services shall not exceed 50 W.

5.108 The carrier frequency 2182 kHz is an international distress and calling frequency for radiotelephony. The conditions for the use of the band 2173.5-2190.5 kHz are prescribed in Articles 31 and 52. (WRC-07)

5.109 The frequencies 2187.5 kHz, 4207.5 kHz, 6312 kHz, 8414.5 kHz, 12577 kHz and 16804.5 kHz are international distress frequencies for digital selective calling. The conditions for the use of these frequencies are prescribed in Article 31.

5.110 The frequencies 2174.5 kHz, 4177.5 kHz, 6268 kHz, 8376.5 kHz, 12520 kHz and 16695 kHz are international distress frequencies for narrow-band direct-printing telegraphy. The conditions for the use of these frequencies are prescribed in Article 31.

5.111 The carrier frequencies 2182 kHz, 3023 kHz, 5680 kHz, 8364 kHz and the frequencies 121.5 MHz, 156.525 MHz, 156.8 MHz and 243 MHz may also be used, in accordance with the procedures in force for terrestrial radiocommunication services, for search and rescue operations concerning manned space vehicles. The conditions for the use of the frequencies are prescribed in Article 31.

The same applies to the frequencies 10003 kHz, 14993 kHz and 19993 kHz, but in each of these cases emissions must be confined in a band of ± 3 kHz about the frequency. (WRC-07)

5.112 Alternative allocation: in Denmark, Malta, Serbia and Sri Lanka, the band 2194-2300 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-07)

5.113 For the conditions for the use of the bands 2300-2495 kHz (2498 kHz in Region 1), 3200-3400 kHz, 4750-4995 kHz and 5005-5060 kHz by the broadcasting service, see Nos. 5.16 to 5.20, 5.21 and 23.3 to 23.10.

5.114 Alternative allocation: in Denmark, Iraq, Malta and Serbia, the band 2502-2625 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-07)

5.115 The carrier (reference) frequencies 3023 kHz and 5680 kHz may also be used, in accordance with Article 31, by stations of the maritime mobile service engaged in coordinated search and rescue operations. (WRC-07)

5.116 Administrations are urged to authorize the use of the band 3155-3195 kHz to provide a common worldwide channel for low power wireless hearing aids. Additional channels for these devices may be assigned by administrations in the bands between 3155 kHz and 3400 kHz to suit local needs.

It should be noted that frequencies in the range 3000 kHz to 4000 kHz are suitable for hearing aid devices which are designed to operate over short distances within the induction field.

5.117 Alternative allocation: in Côte d'Ivoire, Denmark, Egypt, Liberia, Malta, Serbia, Sri Lanka and Togo, the band 3155-3200 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-07)

5.118 Additional allocation: in the United States, Mexico, Peru and Uruguay, the band 3230-3400 kHz is also allocated to the radiolocation service on a secondary basis.

5.119 Additional allocation: in Honduras, Mexico and Peru, the band 3500-3750 kHz is also allocated to the fixed and mobile services on a primary basis. (WRC-07)

5.122 Alternative allocation: in Bolivia, Chile, Ecuador, Paraguay, Peru and Uruguay, the band 3750-4000 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-07)

5.123 Additional allocation: in Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe, the band 3900-3950 kHz is also allocated to the broadcasting service on a primary basis, subject to agreement obtained under No. 9.21.

5.125 Additional allocation: in Greenland, the band 3950-4000 kHz is also allocated to the broadcasting service on a primary basis. The power of the broadcasting stations operating in this band shall not exceed that necessary for a national service and shall in no case exceed 5 kW.

5.126 In Region 3, the stations of those services to which the band 3995-4005 kHz is allocated may transmit standard frequency and time signals.

5.127 The use of the band 4000-4063 kHz by the maritime mobile service is limited to ship stations using radiotelephony (see No. 52.220 and Appendix 17).

5.128 Frequencies in the bands 4063-4123 kHz and 4130-4438 kHz may be used exceptionally by stations in the fixed service, communicating only within the boundary of the country in which they are located, with a mean power not exceeding 50 W, on condition that harmful interference is not caused to the maritime mobile service. In addition, in Afghanistan, Argentina, Armenia, Azerbaijan, Belarus, Botswana, Burkina Faso, the Central African Rep., China, the Russian Federation, Georgia, India, Kazakhstan, Mali, Niger, Kyrgyzstan, Tajikistan, Chad, Turkmenistan and Ukraine, in the bands 4063-4123 kHz, 4130-4133 kHz and 4408-4438 kHz, stations in the fixed service, with a mean power not exceeding 1 kW, can be operated on condition that they are situated at least 600 km from the coast and that harmful interference is not caused to the maritime mobile service. (WRC-07)

5.130 The conditions for the use of the carrier frequencies 4125 kHz and 6215 kHz are prescribed in Articles 31 and 52. (WRC-07)

5.131 The frequency 4209.5 kHz is used exclusively for the transmission by coast stations of meteorological and navigational warnings and urgent information to ships by means of narrow-band direct-printing techniques.

5.132 The frequencies 4210 kHz, 6314 kHz, 8416.5 kHz, 12579 kHz, 16806.5 kHz, 19680.5 kHz, 22376 kHz and 26100.5 kHz are the international frequencies for the transmission of maritime safety information (MSI) (see Appendix 17).

5.133 Different category of service: in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Latvia, Lithuania, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 5130-5250 kHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. 5.33). (WRC-07)

5.134 The use of the bands 5900-5950 kHz, 7300-7350 kHz, 9400-9500 kHz, 11600-11650 kHz, 12050-12100 kHz, 13570-13600 kHz, 13800-13870 kHz, 15600-15800 kHz, 17480-17550 kHz and 18900-19020 kHz by the broadcasting service is subject to the application of the procedure of Article 12. Administrations are encouraged to use these bands to facilitate the introduction of digitally modulated emissions in accordance with the provisions of Resolution 517 (Rev.WRC-07). (WRC-07)

5.136 Additional allocation: frequencies in the band 5900-5950 kHz may be used by stations in the following services, communicating only within the boundary of the country in which they are located: fixed service (in all three Regions), land mobile service (in Region 1), mobile except aeronautical mobile (R) service (in Regions 2 and 3), on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-07)

5.137 On condition that harmful interference is not caused to the maritime mobile service, the bands 6200-6213.5 kHz and 6220.5-6525 kHz may be used exceptionally by stations in the fixed service, communicating only within the boundary of the country in which they are located, with a mean power not exceeding 50 W. At the time of notification of these frequencies, the attention of the Bureau will be drawn to the above conditions.

5.138 The following bands:

6765-6795 kHz (centre frequency 6780 kHz),
433.05-434.79 MHz (centre frequency 433.92 MHz) in Region 1 except in the countries mentioned in No. 5.280,
61-61.5 GHz (centre frequency 61.25 GHz),
122-123 GHz (centre frequency 122.5 GHz), and
244-246 GHz (centre frequency 245 GHz)

are designated for industrial, scientific and medical (ISM) applications. The use of these frequency bands for ISM applications shall be subject to special authorization by the administration concerned, in agreement with other administrations whose radiocommunication services might be affected. In applying this provision, administrations shall have due regard to the latest relevant ITU-R Recommendations.

5.138A and 5.139 (Expired 2009) (FCC)

5.140 Additional allocation: in Angola, Iraq, Kenya, Rwanda, Somalia and Togo, the band 7000-7050 kHz is also allocated to the fixed service on a primary basis.

5.141 Alternative allocation: in Egypt, Eritrea, Ethiopia, Guinea, the Libyan Arab Jamahiriya and Madagascar, the band 7000-7050 kHz is allocated to the fixed service on a primary basis.

5.141A Additional allocation: in Uzbekistan and Kyrgyzstan, the bands 7000-7100 kHz and 7100-7200 kHz are also allocated to the fixed and land mobile services on a secondary basis.

5.141B Additional allocation: after 29 March 2009, in Algeria, Saudi Arabia, Australia, Bahrain, Botswana, Brunei Darussalam, China, Comoros, Korea (Rep. of), Diego Garcia, Djibouti, Egypt, United Arab Emirates, Eritrea, Indonesia, Iran (Islamic Republic of), Japan, Jordan, Kuwait, the Libyan Arab Jamahiriya, Morocco, Mauritania, New Zealand, Oman, Papua New Guinea, Qatar, the Syrian Arab Republic, Singapore, Sudan, Tunisia, Viet Nam and Yemen, the band 7100-7200 kHz is also allocated to the fixed and the mobile, except aeronautical mobile (R), services on a primary basis.

5.141C (Expired 2009) (FCC)

5.142 Until 29 March 2009, the use of the band 7100-7300 kHz in Region 2 by the amateur service shall not impose constraints on the broadcasting service intended for use within Region 1 and Region 3. After 29 March 2009 the use of the band 7200-7300 kHz in Region 2 by the amateur service shall not impose constraints on the broadcasting service intended for use within Region 1 and Region 3.

5.143 Additional allocation: frequencies in the band 7300-7350 kHz may be used by stations in the fixed service and in the land mobile service, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-07)

5.143A In Region 3, the band 7350-7450 kHz is allocated, until 29 March 2009, to the fixed service on a primary basis and to the land mobile service on a secondary basis. After 29 March 2009, frequencies in this band may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations.

5.143B In Region 1, the band 7350-7450 kHz is allocated, until 29 March 2009, to the fixed service on a primary basis and to the land mobile service on a secondary basis. After 29 March 2009, on condition that harmful interference is not caused to the broadcasting service, frequencies in the band 7350-7450 kHz may be used by stations in the fixed and land mobile services communicating only within the boundary of the country in which they are located, each station using a total radiated power that shall not exceed 24 dBW.

5.143C Additional allocation: after 29 March 2009 in Algeria, Saudi Arabia, Bahrain, Comoros, Djibouti, Egypt, United Arab Emirates, Iran (Islamic Republic of), the Libyan Arab Jamahiriya, Jordan, Kuwait, Morocco, Mauritania, Oman, Qatar, the Syrian Arab Republic, Sudan, Tunisia and Yemen, the bands 7350-7400 kHz and 7400-7450 kHz are also allocated to the fixed service on a primary basis.

5.143D In Region 2, the band 7350-7400 kHz is allocated, until 29 March 2009, to the fixed service on a primary basis and to the land mobile service on a secondary basis. After 29 March 2009, frequencies in this band may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations.

5.143E (Expired 2009) (FCC)

5.144 In Region 3, the stations of those services to which the band 7995-8005 kHz is allocated may transmit standard frequency and time signals.

5.145 The conditions for the use of the carrier frequencies 8291 kHz, 12290 kHz and 16420 kHz are prescribed in Articles 31 and 52. (WRC-07)

5.146 Additional allocation: frequencies in the bands 9400-9500 kHz, 11600-11650 kHz, 12050-12100 kHz, 15600-15800 kHz, 17480-17550 kHz and 18900-19020 kHz may be used by stations in the fixed service, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies in the fixed service, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-07)

5.147 On condition that harmful interference is not caused to the broadcasting service, frequencies in the bands 9775-9900 kHz, 11650-11700 kHz and 11975-12050 kHz may be used by stations in the fixed service communicating only within the boundary of the country in which they are located, each station using a total radiated power not exceeding 24 dBW.

5.149 In making assignments to stations of other services to which the bands:

13360-13410 kHz,
25550-25670 kHz,
37.5-38.25 MHz,
73-74.6 MHz in Regions 1 and 3,
150.05-153 MHz in Region 1,
322-328.6 MHz,
406.1-410 MHz,
608-614 MHz in Regions 1 and 3,
1330-1400 MHz,
1610.6-1613.8 MHz,
1660-1670 MHz,
1718.8-1722.2 MHz,
2655-2690 MHz,
3260-3267 MHz,
3332-3339 MHz,
3345.8-3352.5 MHz,
4825-4835 MHz,
4950-4990 MHz,
4990-5000 MHz,
6650-6675.2 MHz,
10.6-10.68 GHz,
14.47-14.5 GHz,
22.01-22.21 GHz,
22.21-22.5 GHz,
22.81-22.86 GHz,
23.07-23.12 GHz,
31.2-31.3 GHz,
31.5-31.8 GHz in Regions 1 and 3,
36.43-36.5 GHz,
42.5-43.5 GHz,
48.94-49.04 GHz,
76-86 GHz,
92-94 GHz,
94.1-100 GHz,
102-109.5 GHz,
111.8-114.25 GHz,
128.33-128.59 GHz,
129.23-129.49 GHz,
130-134 GHz,
136-148.5 GHz,
151.5-158.5 GHz,
168.59-168.93 GHz,
171.11-171.45 GHz,
172.31-172.65 GHz,
173.52-173.85 GHz,
195.75-196.15 GHz,
209-226 GHz,
241-250 GHz,
252-275 GHz

are allocated, administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. Emissions from spaceborne or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. 4.5 and 4.6 and Article 29). (WRC-07)

5.150 The following bands:

13553-13567 kHz (centre frequency 13560 kHz),
26957-27283 kHz (centre frequency 27120 kHz),
40.66-40.70 MHz (centre frequency 40.68 MHz),
902-928 MHz in Region 2 (centre frequency 915 MHz),
2400-2500 MHz (centre frequency 2450 MHz),
5725-5875 MHz (centre frequency 5800 MHz), and
24-24.25 GHz (centre frequency 24.125 GHz)

are also designated for industrial, scientific and medical (ISM) applications. Radiocommunication services operating within these bands must accept harmful interference which may be caused by these applications. ISM equipment operating in these bands is subject to the provisions of No. 15.13.

5.151 Additional allocation: frequencies in the bands 13570-13600 kHz and 13800-13870 kHz may be used by stations in the fixed service and in the mobile except aeronautical mobile (R) service, communicating only within the boundary of the country in which they are located, on the condition that harmful interference is not caused to the broadcasting service. When using frequencies in these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-07)

5.152 Additional allocation: in Armenia, Azerbaijan, China, Côte d'Ivoire, the Russian Federation, Georgia, Iran (Islamic Republic of), Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 14250-14350 kHz is also allocated to the fixed service on a primary basis. Stations of the fixed service shall not use a radiated power exceeding 24 dBW.

5.153 In Region 3, the stations of those services to which the band 15995-16005 kHz is allocated may transmit standard frequency and time signals.

5.154 Additional allocation: in Armenia, Azerbaijan, the Russian Federation, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 18068-18168 kHz is also allocated to the fixed service on a primary basis for use within their boundaries, with a peak envelope power not exceeding 1 kW.

5.155 Additional allocation: in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, Tajikistan, Turkmenistan and Ukraine, the band 21850-21870 kHz is also allocated to the aeronautical mobile (R) service on a primary basis. (WRC-07)

5.155A In Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, Tajikistan, Turkmenistan and Ukraine, the use of the band 21850-21870 kHz by the fixed service is limited to provision of services related to aircraft flight safety. (WRC-07)

5.155B The band 21870-21924 kHz is used by the fixed service for provision of services related to aircraft flight safety.

5.156 Additional allocation: in Nigeria, the band 22720-23200 kHz is also allocated to the meteorological aids service (radiosondes) on a primary basis.

5.156A The use of the band 23200-23350 kHz by the fixed service is limited to provision of services related to aircraft flight safety.

5.157 The use of the band 23350-24000 kHz by the maritime mobile service is limited to inter-ship radiotelegraphy.

5.160 Additional allocation: in Botswana, Burundi, Lesotho, Malawi, Dem. Rep. of the Congo, Rwanda and Swaziland, the band 41-44 MHz is also allocated to the aeronautical radionavigation service on a primary basis.

5.161 Additional allocation: in Iran (Islamic Republic of) and Japan, the band 41-44 MHz is also allocated to the radiolocation service on a secondary basis.

5.162 Additional allocation: in Australia and New Zealand, the band 44-47 MHz is also allocated to the broadcasting service on a primary basis.

5.162A Additional allocation: in Germany, Austria, Belgium, Bosnia and Herzegovina, China, Vatican, Denmark, Spain, Estonia, the Russian Federation, Finland, France, Ireland, Iceland, Italy, Latvia, The Former Yugoslav Republic of Macedonia, Liechtenstein, Lithuania, Luxembourg, Monaco, Montenegro, Norway, the Netherlands, Poland, Portugal, Slovakia, the Czech Rep., the United Kingdom, Serbia, Slovenia, Sweden and Switzerland the band 46-68 MHz is also allocated to the radiolocation service on a secondary basis. This use is limited to the operation of wind profiler radars in accordance with Resolution 217 (WRC-97). (WRC-07)

5.163 Additional allocation: in Armenia, Belarus, the Russian Federation, Georgia, Hungary, Kazakhstan, Latvia, Lithuania, Moldova, Uzbekistan, Kyrgyzstan, Slovakia, the Czech Rep., Tajikistan, Turkmenistan and Ukraine, the bands 47-48.5 MHz and 56.5-58 MHz are also allocated to the fixed and land mobile services on a secondary basis. (WRC-07)

5.164 Additional allocation: in Albania, Germany, Austria, Belgium, Bosnia and Herzegovina, Botswana, Bulgaria, Côte d'Ivoire, Denmark, Spain, Estonia, Finland, France, Gabon, Greece, Ireland, Israel, Italy, the Libyan Arab Jamahiriya, Jordan, Lebanon, Liechtenstein, Luxembourg, Madagascar, Mali, Malta, Morocco, Mauritania, Monaco, Montenegro, Nigeria, Norway, the Netherlands, Poland, Syrian Arab Republic, Romania, the United Kingdom, Serbia, Slovenia, Sweden, Switzerland, Swaziland, Chad, Togo, Tunisia and Turkey, the band 47-68 MHz, in South Africa the band 47-50 MHz, in the Czech Rep. the band 66-68 MHz, and in Latvia and Lithuania the band 48.5-56.5 MHz, are also allocated to the land mobile service on a primary basis. However, stations of the land mobile service in the countries mentioned in connection with each band referred to in this footnote shall not cause harmful interference to, or claim protection from, existing or planned broadcasting stations of countries other than those mentioned in connection with the band. (WRC-07)

5.165 Additional allocation: in Angola, Cameroon, Congo (Rep. of the), Madagascar, Mozambique, Somalia, Sudan, Tanzania and Chad, the band 47-68 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

5.166 Alternative allocation: in New Zealand, the band 50-51 MHz is allocated to the fixed, mobile and broadcasting services on a primary basis; the band 53-54 MHz is allocated to the fixed and mobile services on a primary basis.

5.167 Alternative allocation: in Bangladesh, Brunei Darussalam, India, Iran (Islamic Republic of), Pakistan, Singapore and Thailand, the band 50-54 MHz is allocated to the fixed, mobile and broadcasting services on a primary basis. (WRC-07)

5.167A Additional allocation: in Indonesia, the band 50-54 MHz is also allocated to the fixed, mobile and broadcasting services on a primary basis. (WRC-07)

5.168 Additional allocation: in Australia, China and the Dem. People's Rep. of Korea, the band 50-54 MHz is also allocated to the broadcasting service on a primary basis.

5.169 Alternative allocation: in Botswana, Burundi, Lesotho, Malawi, Namibia, the Dem. Rep. of the Congo, Rwanda, South Africa, Swaziland, Zambia and Zimbabwe, the band 50-54 MHz is allocated to the amateur service on a primary basis.

5.170 Additional allocation: in New Zealand, the band 51-53 MHz is also allocated to the fixed and mobile services on a primary basis.

5.171 Additional allocation: in Botswana, Burundi, Lesotho, Malawi, Mali, Namibia, Dem. Rep. of the Congo, Rwanda, South Africa, Swaziland and Zimbabwe, the band 54-68 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

5.172 Different category of service: in the French overseas departments and communities in Region 2, Guyana, Jamaica and Mexico, the allocation of the band 54-68 MHz to the fixed and mobile services is on a primary basis (see No. 5.33).

5.173 Different category of service: in the French overseas departments and communities in Region 2, Guyana, Jamaica and Mexico, the allocation of the band 68-72 MHz to the fixed and mobile services is on a primary basis (see No. 5.33).

5.175 Alternative allocation: in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Moldova, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the bands 68-73 MHz and 76-87.5 MHz are allocated to the broadcasting service on a primary basis. In Latvia and Lithuania, the bands 68-73 MHz and 76-87.5 MHz are allocated to the broadcasting and mobile, except aeronautical mobile, services on a primary basis. The services to which these bands are allocated in other countries and the broadcasting service in the countries listed above are subject to agreements with the neighbouring countries concerned. (WRC-07)

5.176 Additional allocation: in Australia, China, Korea (Rep. of), the Philippines, the Dem. People's Rep. of Korea and Samoa, the band 68-74 MHz is also allocated to the broadcasting service on a primary basis. (WRC-07)

5.177 Additional allocation: in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 73-74 MHz is also allocated to the broadcasting service on a primary basis, subject to agreement obtained under No. 9.21. (WRC-07)

5.178 Additional allocation: in Colombia, Costa Rica, Cuba, El Salvador, Guatemala, Guyana, Honduras and Nicaragua, the band 73-74.6 MHz is also allocated to the fixed and mobile services on a secondary basis.

5.179 Additional allocation: in Armenia, Azerbaijan, Belarus, China, the Russian Federation, Georgia, Kazakhstan, Lithuania, Mongolia, Kyrgyzstan, Slovakia, Tajikistan, Turkmenistan and Ukraine, the bands 74.6-74.8 MHz and 75.2-75.4 MHz are also allocated to the aeronautical radionavigation service, on a primary basis, for ground-based transmitters only. (WRC-07)

5.180 The frequency 75 MHz is assigned to marker beacons. Administrations shall refrain from assigning frequencies close to the limits of the guardband to stations of other services which, because of their power or geographical position, might cause harmful interference or otherwise place a constraint on marker beacons.

Every effort should be made to improve further the characteristics of airborne receivers and to limit the power of transmitting stations close to the limits 74.8 MHz and 75.2 MHz.

5.181 Additional allocation: in Egypt, Israel and the Syrian Arab Republic, the band 74.8-75.2 MHz is also allocated to the mobile service on a secondary basis, subject to agreement obtained under No. 9.21. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of the procedure invoked under No. 9.21.

5.182 Additional allocation: in Western Samoa, the band 75.4-87 MHz is also allocated to the broadcasting service on a primary basis.

5.183 Additional allocation: in China, Korea (Rep. of), Japan, the Philippines and the Dem. People's Rep. of Korea, the band 76-87 MHz is also allocated to the broadcasting service on a primary basis.

5.185 Different category of service: in the United States, the French overseas departments and communities in Region 2, Guyana, Jamaica, Mexico and Paraguay, the allocation of the band 76-88 MHz to the fixed and mobile services is on a primary basis (see No. 5.33).

5.187 Alternative allocation: in Albania, the band 81-87.5 MHz is allocated to the broadcasting service on a primary basis and used in accordance with the decisions contained in the Final Acts of the Special Regional Conference (Geneva, 1960).

5.188 Additional allocation: in Australia, the band 85-87 MHz is also allocated to the broadcasting service on a primary basis. The introduction of the broadcasting service in Australia is subject to special agreements between the administrations concerned.

5.190 Additional allocation: in Monaco, the band 87.5-88 MHz is also allocated to the land mobile service on a primary basis, subject to agreement obtained under No. 9.21.

5.192 Additional allocation: in China and Korea (Rep. of), the band 100-108 MHz is also allocated to the fixed and mobile services on a primary basis.

5.194 Additional allocation: in Azerbaijan, Kyrgyzstan, Somalia and Turkmenistan, the band 104-108 MHz is also allocated to the mobile, except aeronautical mobile (R), service on a secondary basis. (WRC-07)

5.197 Additional allocation: in Pakistan and the Syrian Arab Republic, the band 108-111.975 MHz is also allocated to the mobile service on a secondary basis, subject to agreement obtained under No. 9.21. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of the procedures invoked under No. 9.21. (WRC-07)

5.197A Additional allocation: the band 108-117.975 MHz is also allocated on a primary basis to the aeronautical mobile (R) service, limited to systems operating in accordance with recognized international aeronautical standards. Such use shall be in accordance with Resolution 413 (Rev.WRC-07). The use of the band 108-112 MHz by the aeronautical mobile (R) service shall be limited to systems composed of ground-based transmitters and associated receivers that provide navigational information in support of air navigation functions in accordance with recognized international aeronautical standards. (WRC-07)

5.200 In the band 117.975-137 MHz, the frequency 121.5 MHz is the aeronautical emergency frequency and, where required, the frequency 123.1 MHz is the aeronautical frequency auxiliary to 121.5 MHz. Mobile stations of the maritime mobile service may communicate on these frequencies under the conditions laid down in Article 31 for distress and safety purposes with stations of the aeronautical mobile service. (WRC-07)

5.201 Additional allocation: in Angola, Armenia, Azerbaijan, Belarus, Bulgaria, Estonia, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Iraq, Japan, Kazakhstan, Latvia, Moldova, Mongolia, Mozambique, Uzbekistan, Papua New Guinea, Poland, Kyrgyzstan, Slovakia, the Czech Rep., Romania, Tajikistan, Turkmenistan and Ukraine, the band 132-136 MHz is also allocated to the aeronautical mobile (OR) service on a primary basis. In assigning frequencies to stations of the aeronautical mobile (OR) service, the administration shall take account of the frequencies assigned to stations in the aeronautical mobile (R) service.

5.202 Additional allocation: in Saudi Arabia, Armenia, Azerbaijan, Belarus, Bulgaria, the United Arab Emirates, the Russian Federation, Georgia, Iran (Islamic Republic of), Jordan, Latvia, Moldova, Oman, Uzbekistan, Poland, the Syrian Arab Republic, Kyrgyzstan, Slovakia, the Czech Rep., Romania, Tajikistan, Turkmenistan and Ukraine, the band 136-137 MHz is also allocated to the aeronautical mobile (OR) service on a primary basis. In assigning frequencies to stations of the aeronautical mobile (OR) service, the administration shall take account of the frequencies assigned to stations in the aeronautical mobile (R) service.

5.204 Different category of service: in Afghanistan, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, China, Cuba, the United Arab Emirates, India, Indonesia, Iran (Islamic Republic of), Iraq, Kuwait, Montenegro, Oman, Pakistan, the Philippines, Qatar, Serbia, Singapore, Thailand and Yemen, the band 137-138 MHz is allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis (see No. 5.33). (WRC-07)

5.205 Different category of service: in Israel and Jordan, the allocation of the band 137-138 MHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. 5.33).

5.206 Different category of service: in Armenia, Azerbaijan, Belarus, Bulgaria, Egypt, the Russian Federation, Finland, France, Georgia, Greece, Kazakhstan, Lebanon, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, the Syrian Arab Republic, Slovakia, the Czech Rep., Romania, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 137-138 MHz to the aeronautical mobile (OR) service is on a primary basis (see No. 5.33).

5.207 Additional allocation: in Australia, the band 137-144 MHz is also allocated to the broadcasting service on a primary basis until that service can be accommodated within regional broadcasting allocations.

5.208 The use of the band 137-138 MHz by the mobile-satellite service is subject to coordination under No. 9.11A.

5.208A In making assignments to space stations in the mobile-satellite service in the bands 137-138 MHz, 387-390 MHz and 400.15-401 MHz, administrations shall take all practicable steps to protect the radio astronomy service in the bands 150.05-153 MHz, 322-328.6 MHz, 406.1-410 MHz and 608-614 MHz from harmful interference from unwanted emissions. The threshold levels of interference detrimental to the radio astronomy service are shown in the relevant ITU-R Recommendation. (WRC-07)

5.208B In the bands:

137-138 MHz,
387-390 MHz,
400.15-401 MHz,
1452-1492 MHz,
1525-1610 MHz,
1613.8-1626.5 MHz,
2655-2690 MHz,
21.4-22 GHz,

Resolution 739 (Rev.WRC-07) applies. (WRC-07) (FCC)

5.209 The use of the bands 137-138 MHz, 148-150.05 MHz, 399.9-400.05 MHz, 400.15-401 MHz, 454-456 MHz and 459-460 MHz by the mobile-satellite service is limited to non-geostationary-satellite systems.

5.210 Additional allocation: in Italy, the Czech Rep. and the United Kingdom, the bands 138-143.6 MHz and 143.65-144 MHz are also allocated to the space research service (space-to-Earth) on a secondary basis. (WRC-07)

5.211 Additional allocation: in Germany, Saudi Arabia, Austria, Bahrain, Belgium, Denmark, the United Arab Emirates, Spain, Finland, Greece, Ireland, Israel, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lebanon, Liechtenstein, Luxembourg, Mali, Malta, Montenegro, Norway, the Netherlands, Qatar, the United Kingdom, Serbia, Slovenia, Somalia, Sweden, Switzerland, Tanzania, Tunisia and Turkey, the band 138-144 MHz is also allocated to the maritime mobile and land mobile services on a primary basis. (WRC-07)

5.212 Alternative allocation: in Angola, Botswana, Burundi, Cameroon, the Central African Rep., Congo (Rep. of the), Gabon, Gambia, Ghana, Guinea, Iraq, Libyan Arab Jamahiriya, Jordan, Lesotho, Liberia, Malawi, Mozambique, Namibia, Oman, Uganda, Syrian Arab Republic, the Dem. Rep. of the Congo, Rwanda, Sierra Leone, South Africa, Swaziland, Chad, Togo, Zambia and Zimbabwe, the band 138-144 MHz is allocated to the fixed and mobile services on a primary basis. (WRC-07)

5.213 Additional allocation: in China, the band 138-144 MHz is also allocated to the radiolocation service on a primary basis.

5.214 Additional allocation: in Eritrea, Ethiopia, Kenya, The Former Yugoslav Republic of Macedonia, Malta, Montenegro, Serbia, Somalia, Sudan and Tanzania, the band 138-144 MHz is also allocated to the fixed service on a primary basis. (WRC-07)

5.216 Additional allocation: in China, the band 144-146 MHz is also allocated to the aeronautical mobile (OR) service on a secondary basis.

5.217 Alternative allocation: in Afghanistan, Bangladesh, Cuba, Guyana and India, the band 146-148 MHz is allocated to the fixed and mobile services on a primary basis.

5.218 Additional allocation: the band 148-149.9 MHz is also allocated to the space operation service (Earth-to-space) on a primary basis, subject to agreement obtained under No. 9.21. The bandwidth of any individual transmission shall not exceed ± 25 kHz.

5.219 The use of the band 148-149.9 MHz by the mobile-satellite service is subject to coordination under No. 9.11A. The mobile-satellite service shall not constrain the development and use of the fixed, mobile and space operation services in the band 148-149.9 MHz.

5.220 The use of the bands 149.9-150.05 MHz and 399.9-400.05 MHz by the mobile-satellite service is subject to coordination under No. 9.11A. The mobile-satellite service shall not constrain the development and use of the radionavigation-satellite service in the bands 149.9-150.05 MHz and 399.9-400.05 MHz.

5.221 Stations of the mobile-satellite service in the band 148-149.9 MHz shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services operating in accordance with the Table of Frequency Allocations in the following countries: Albania, Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Benin, Bosnia and Herzegovina, Botswana, Brunei Darussalam, Bulgaria, Cameroon, China, Cyprus, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Croatia, Cuba, Denmark, Egypt, the United Arab Emirates, Eritrea, Spain, Estonia, Ethiopia, the Russian Federation, Finland, France, Gabon, Ghana, Greece, Guinea, Guinea Bissau, Hungary, India, Iran (Islamic Republic of), Ireland, Iceland, Israel, Italy, the Libyan Arab Jamahiriya, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lesotho, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Malaysia, Mali, Malta, Mauritania, Moldova, Mongolia, Montenegro, Mozambique, Namibia, Norway, New Zealand, Oman, Uganda, Uzbekistan, Pakistan, Panama, Papua New Guinea, Paraguay, the Netherlands, the Philippines, Poland, Portugal, Qatar, the Syrian Arab Republic, Kyrgyzstan, Dem. People's Rep. of Korea, Slovakia, Romania, the United Kingdom, Senegal, Serbia, Sierra Leone, Singapore, Slovenia, Sri Lanka, South Africa, Sweden, Switzerland, Swaziland, Tanzania, Chad, Thailand, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Ukraine, Viet Nam, Yemen, Zambia and Zimbabwe. (WRC-07)

5.222 Emissions of the radionavigation-satellite service in the bands 149.9-150.05 MHz and 399.9-400.05 MHz may also be used by receiving earth stations of the space research service.

5.223 Recognizing that the use of the band 149.9-150.05 MHz by the fixed and mobile services may cause harmful interference to the radionavigation-satellite service, administrations are urged not to authorize such use in application of No. 4.4.

5.224A The use of the bands 149.9-150.05 MHz and 399.9-400.05 MHz by the mobile-satellite service (Earth-to-space) is limited to the land mobile-satellite service (Earth-to-space) until 1 January 2015.

5.224B The allocation of the bands 149.9-150.05 MHz and 399.9-400.05 MHz to the radionavigation-satellite service shall be effective until 1 January 2015.

5.225 Additional allocation: in Australia and India, the band 150.05-153 MHz is also allocated to the radio astronomy service on a primary basis.

5.226 The frequency 156.525 MHz is the international distress, safety and calling frequency for the maritime mobile VHF radiotelephone service using digital selective calling (DSC). The conditions for the use of this frequency and the band 156.4875-156.5625 MHz are contained in Articles 31 and 52, and in Appendix 18.

The frequency 156.8 MHz is the international distress, safety and calling frequency for the maritime mobile VHF radiotelephone service. The conditions for the use of this frequency and the band 156.7625-156.8375 MHz are contained in Article 31 and Appendix 18.

In the bands 156-156.4875 MHz, 156.5625-156.7625 MHz, 156.8375-157.45 MHz, 160.6-160.975 MHz and 161.475-162.05 MHz, each administration shall give priority to the maritime mobile service on

only such frequencies as are assigned to stations of the maritime mobile service by the administration (see Articles 31 and 52, and Appendix 18).

Any use of frequencies in these bands by stations of other services to which they are allocated should be avoided in areas where such use might cause harmful interference to the maritime mobile VHF radiocommunication service.

However, the frequencies 156.8 MHz and 156.525 MHz and the frequency bands in which priority is given to the maritime mobile service may be used for radiocommunications on inland waterways subject to agreement between interested and affected administrations and taking into account current frequency usage and existing agreements. (WRC-07)

5.227 Additional allocation: the bands 156.4875-156.5125 MHz and 156.5375-156.5625 MHz are also allocated to the fixed and land mobile services on a primary basis. The use of these bands by the fixed and land mobile services shall not cause harmful interference to nor claim protection from the maritime mobile VHF radiocommunication service. (WRC-07)

5.227A Additional allocation: the bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz are also allocated to the mobile-satellite service (Earth-to-space) on a secondary basis for the reception of automatic identification system (AIS) emissions from stations operating in the maritime-mobile service (see Appendix 18). (WRC-07)

5.229 Alternative allocation: in Morocco, the band 162-174 MHz is allocated to the broadcasting service on a primary basis. The use of this band shall be subject to agreement with administrations having services, operating or planned, in accordance with the Table which are likely to be affected. Stations in existence on 1 January 1981, with their technical characteristics as of that date, are not affected by such agreement.

5.230 Additional allocation: in China, the band 163-167 MHz is also allocated to the space operation service (space-to-Earth) on a primary basis, subject to agreement obtained under No. 9.21.

5.231 Additional allocation: in Afghanistan, China and Pakistan, the band 167-174 MHz is also allocated to the broadcasting service on a primary basis. The introduction of the broadcasting service into this band shall be subject to agreement with the neighbouring countries in Region 3 whose services are likely to be affected.

5.232 Additional allocation: in Japan, the band 170-174 MHz is also allocated to the broadcasting service on a primary basis.

5.233 Additional allocation: in China, the band 174-184 MHz is also allocated to the space research (space-to-Earth) and the space operation (space-to-Earth) services on a primary basis, subject to agreement obtained under No. 9.21. These services shall not cause harmful interference to, or claim protection from, existing or planned broadcasting stations.

5.234 Different category of service: in Mexico, the allocation of the band 174-216 MHz to the fixed and mobile services is on a primary basis (see No. 5.33).

5.235 Additional allocation: in Germany, Austria, Belgium, Denmark, Spain, Finland, France, Israel, Italy, Liechtenstein, Malta, Monaco, Norway, the Netherlands, the United Kingdom, Sweden and Switzerland, the band 174-223 MHz is also allocated to the land mobile service on a primary basis. However, the stations of the land mobile service shall not cause harmful interference to, or claim protection from, broadcasting stations, existing or planned, in countries other than those listed in this footnote.

5.237 Additional allocation: in Congo (Rep. of the), Eritrea, Ethiopia, Gambia, Guinea, the Libyan Arab Jamahiriya, Malawi, Mali, Sierra Leone, Somalia and Chad, the band 174-223 MHz is also allocated to the fixed and mobile services on a secondary basis. (WRC-07)

5.238 Additional allocation: in Bangladesh, India, Pakistan and the Philippines, the band 200-216 MHz is also allocated to the aeronautical radionavigation service on a primary basis.

5.240 Additional allocation: in China and India, the band 216-223 MHz is also allocated to the aeronautical radionavigation service on a primary basis and to the radiolocation service on a secondary basis.

5.241 In Region 2, no new stations in the radiolocation service may be authorized in the band 216-225 MHz. Stations authorized prior to 1 January 1990 may continue to operate on a secondary basis.

5.242 Additional allocation: in Canada, the band 216-220 MHz is also allocated to the land mobile service on a primary basis.

5.243 Additional allocation: in Somalia, the band 216-225 MHz is also allocated to the aeronautical radionavigation service on a primary basis, subject to not causing harmful interference to existing or planned broadcasting services in other countries.

5.245 Additional allocation: in Japan, the band 222-223 MHz is also allocated to the aeronautical radionavigation service on a primary basis and to the radiolocation service on a secondary basis.

5.246 Alternative allocation: in Spain, France, Israel and Monaco, the band 223-230 MHz is allocated to the broadcasting and land mobile services on a primary basis (see No. 5.33) on the basis that, in the preparation of frequency plans, the broadcasting service shall have prior choice of frequencies; and allocated to the fixed and mobile, except land mobile, services on a secondary basis. However, the stations of the land mobile service shall not cause harmful interference to, or claim protection from, existing or planned broadcasting stations in Morocco and Algeria.

5.247 Additional allocation: in Saudi Arabia, Bahrain, the United Arab Emirates, Jordan, Oman, Qatar and Syrian Arab Republic, the band 223-235 MHz is also allocated to the aeronautical radionavigation service on a primary basis.

5.250 Additional allocation: in China, the band 225-235 MHz is also allocated to the radio astronomy service on a secondary basis.

5.251 Additional allocation: in Nigeria, the band 230-235 MHz is also allocated to the aeronautical radionavigation service on a primary basis, subject to agreement obtained under No. 9.21.

5.252 Alternative allocation: in Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe, the bands 230-238 MHz and 246-254 MHz are allocated to the broadcasting service on a primary basis, subject to agreement obtained under No. 9.21.

5.254 The bands 235-322 MHz and 335.4-399.9 MHz may be used by the mobile-satellite service, subject to agreement obtained under No. 9.21, on condition that stations in this service do not cause harmful interference to those of other services operating or planned to be operated in accordance with the Table of Frequency Allocations except for the additional allocation made in footnote No. 5.256A.

5.255 The bands 312-315 MHz (Earth-to-space) and 387-390 MHz (space-to-Earth) in the mobile-satellite service may also be used by non-geostationary-satellite systems. Such use is subject to coordination under No. 9.11A.

5.256 The frequency 243 MHz is the frequency in this band for use by survival craft stations and equipment used for survival purposes. (WRC-07)

5.256A Additional allocation: in China, the Russian Federation, Kazakhstan and Ukraine, the band 258-261 MHz is also allocated to the space research service (Earth-to-space) and space operation service (Earth-to-space) on a primary basis. Stations in the space research service (Earth-to-space) and space operation service (Earth-to-space) shall not cause harmful interference to, nor claim protection from, nor constrain the use and development of the mobile service systems and mobile-satellite service systems operating in the band. Stations in space research service (Earth-to-space) and space operation service (Earth-to-space) shall not constrain the future development of fixed service systems of other countries.

5.257 The band 267-272 MHz may be used by administrations for space telemetry in their countries on a primary basis, subject to agreement obtained under No. 9.21.

5.258 The use of the band 328.6-335.4 MHz by the aeronautical radionavigation service is limited to Instrument Landing Systems (glide path).

5.259 Additional allocation: in Egypt, Israel and the Syrian Arab Republic, the band 328.6-335.4 MHz is also allocated to the mobile service on a secondary basis, subject to agreement obtained under No. 9.21. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of the procedure invoked under No. 9.21. (WRC-07)

5.260 Recognizing that the use of the band 399.9-400.05 MHz by the fixed and mobile services may cause harmful interference to the radionavigation satellite service, administrations are urged not to authorize such use in application of No. 4.4.

5.261 Emissions shall be confined in a band of ± 25 kHz about the standard frequency 400.1 MHz.

5.262 Additional allocation: in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Botswana, Colombia, Costa Rica, Cuba, Egypt, the United Arab Emirates, Ecuador, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kazakhstan, Kuwait, Liberia, Malaysia, Moldova, Uzbekistan, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, Kyrgyzstan, Romania, Singapore, Somalia, Tajikistan, Turkmenistan and Ukraine, the band 400.05-401 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-07)

5.263 The band 400.15-401 MHz is also allocated to the space research service in the space-to-space direction for communications with manned space vehicles. In this application, the space research service will not be regarded as a safety service.

5.264 The use of the band 400.15-401 MHz by the mobile-satellite service is subject to coordination under No. 9.11A. The power flux-density limit indicated in Annex 1 of Appendix 5 shall apply until such time as a competent world radiocommunication conference revises it.

5.266 The use of the band 406-406.1 MHz by the mobile-satellite service is limited to low power satellite emergency position-indicating radiobeacons (see also Article 31). (WRC-07)

5.267 Any emission capable of causing harmful interference to the authorized uses of the band 406-406.1 MHz is prohibited.

5.268 Use of the band 410-420 MHz by the space research service is limited to communications within 5 km of an orbiting, manned space vehicle. The power flux-density at the surface of the Earth produced by emissions from extra-vehicular activities shall not exceed -153 dB(W/m^2) for $0° \leq \delta \leq 5°$, $-153 + 0.077 (\delta - 5)$ dB(W/m^2) for $5° \leq \delta \leq 70°$ and -148 dB(W/m^2) for $70° \leq \delta \leq 90°$, where δ is the angle of arrival of the radio-frequency wave and the reference bandwidth is 4 kHz. No. 4.10 does not apply to extra-vehicular activities. In this frequency band the space research (space-to-space) service shall not claim protection from, nor constrain the use and development of, stations of the fixed and mobile services.

5.269 Different category of service: in Australia, the United States, India, Japan and the United Kingdom, the allocation of the bands 420-430 MHz and 440-450 MHz to the radiolocation service is on a primary basis (see No. 5.33).

5.270 Additional allocation: in Australia, the United States, Jamaica and the Philippines, the bands 420-430 MHz and 440-450 MHz are also allocated to the amateur service on a secondary basis.

5.271 Additional allocation: in Belarus, China, India, Kyrgyzstan and Turkmenistan, the band 420-460 MHz is also allocated to the aeronautical radionavigation service (radio altimeters) on a secondary basis. (WRC-07)

5.272 Different category of service: in France, the allocation of the band 430-434 MHz to the amateur service is on a secondary basis (see No. 5.32).

5.273 Different category of service: in the Libyan Arab Jamahiriya, the allocation of the bands 430-432 MHz and 438-440 MHz to the radiolocation service is on a secondary basis (see No. 5.32).

5.274 Alternative allocation: in Denmark, Norway and Sweden, the bands 430-432 MHz and 438-440 MHz are allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

5.275 Additional allocation: in Croatia, Estonia, Finland, Libyan Arab Jamahiriya, The Former Yugoslav Republic of Macedonia, Montenegro, Serbia and Slovenia, the bands 430-432 MHz and 438-440 MHz are also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-07)

5.276 Additional allocation: in Afghanistan, Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burkina Faso, Burundi, Egypt, the United Arab Emirates, Ecuador, Eritrea, Ethiopia, Greece, Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Italy, Libyan Arab Jamahiriya, Jordan, Kenya, Kuwait, Lebanon, Malaysia, Malta, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Switzerland, Tanzania, Thailand, Togo, Turkey and Yemen, the band 430-440 MHz is also allocated to the fixed service on a primary basis and the bands 430-435 MHz and 438-440 MHz are also allocated to the mobile, except aeronautical mobile, service on a primary basis. (WRC-07)

5.277 Additional allocation: in Angola, Armenia, Azerbaijan, Belarus, Cameroon, Congo (Rep. of the), Djibouti, the Russian Federation, Georgia, Hungary, Israel, Kazakhstan, Mali, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Slovakia, Romania, Rwanda, Tajikistan, Chad, Turkmenistan and Ukraine, the band 430-440 MHz is also allocated to the fixed service on a primary basis. (WRC-07)

5.278 Different category of service: in Argentina, Colombia, Costa Rica, Cuba, Guyana, Honduras, Panama and Venezuela, the allocation of the band 430-440 MHz to the amateur service is on a primary basis (see No. 5.33).

5.279 Additional allocation: in Mexico, the bands 430-435 MHz and 438-440 MHz are also allocated on a primary basis to the land mobile service, subject to agreement obtained under No. 9.21.

5.279A The use of this band by sensors in the Earth exploration-satellite service (active) shall be in accordance with Recommendation ITU-R RS.1260-1. Additionally, the Earth exploration-satellite service (active) in the band 432-438 MHz shall not cause harmful interference to the aeronautical radionavigation service in China. The provisions of this footnote in no way diminish the obligation of the Earth exploration-satellite service (active) to operate as a secondary service in accordance with Nos. 5.29 and 5.30.

5.280 In Germany, Austria, Bosnia and Herzegovina, Croatia, The Former Yugoslav Republic of Macedonia, Liechtenstein, Montenegro, Portugal, Serbia, Slovenia and Switzerland, the band 433.05-434.79 MHz (centre frequency 433.92 MHz) is designated for industrial, scientific and medical (ISM) applications. Radiocommunication services of these countries operating within this band must accept harmful interference which may be caused by these applications. ISM equipment operating in this band is subject to the provisions of No. 15.13. (WRC-07)

5.281 Additional allocation: in the French overseas departments and communities in Region 2 and India, the band 433.75-434.25 MHz is also allocated to the space operation service (Earth-to-space) on a primary basis. In France and in Brazil, the band is allocated to the same service on a secondary basis.

5.282 In the bands 435-438 MHz, 1260-1270 MHz, 2400-2450 MHz, 3400-3410 MHz (in Regions 2 and 3 only) and 5650-5670 MHz, the amateur-satellite service may operate subject to not causing harmful interference to other services operating in accordance with the Table (see No. 5.43). Administrations authorizing such use shall ensure that any harmful interference caused by emissions from a station in the amateur-satellite service is immediately eliminated in accordance with the provisions of No. 25.11. The use of the bands 1260-1270 MHz and 5650-5670 MHz by the amateur-satellite service is limited to the Earth-to-space direction.

5.283 Additional allocation: in Austria, the band 438-440 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

5.284 Additional allocation: in Canada, the band 440-450 MHz is also allocated to the amateur service on a secondary basis.

5.285 Different category of service: in Canada, the allocation of the band 440-450 MHz to the radiolocation service is on a primary basis (see No. 5.33).

5.286 The band 449.75-450.25 MHz may be used for the space operation service (Earth-to-space) and the space research service (Earth-to-space), subject to agreement obtained under No. 9.21.

5.286A The use of the bands 454-456 MHz and 459-460 MHz by the mobile-satellite service is subject to coordination under No. 9.11A.

5.286AA The band 450-470 MHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). See Resolution 224 (Rev.WRC-07). This identification does not preclude the use of this band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC-07)

5.286B The use of the band 454-455 MHz in the countries listed in No. 5.286D, 455-456 MHz and 459-460 MHz in Region 2, and 454-456 MHz and 459-460 MHz in the countries listed in No. 5.286E, by stations in the mobile-satellite service, shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services operating in accordance with the Table of Frequency Allocations.

5.286C The use of the band 454-455 MHz in the countries listed in No. 5.286D, 455-456 MHz and 459-460 MHz in Region 2, and 454-456 MHz and 459-460 MHz in the countries listed in No. 5.286E, by stations in the mobile-satellite service, shall not constrain the development and use of the fixed and mobile services operating in accordance with the Table of Frequency Allocations.

5.286D Additional allocation: in Canada, the United States and Panama, the band 454-455 MHz is also allocated to the mobile-satellite service (Earth-to-space) on a primary basis. (WRC-07)

5.286E Additional allocation: in Cape Verde, Nepal and Nigeria, the bands 454-456 MHz and 459-460 MHz are also allocated to the mobile-satellite (Earth-to-space) service on a primary basis. (WRC-07)

5.287 In the maritime mobile service, the frequencies 457.525 MHz, 457.550 MHz, 457.575 MHz, 467.525 MHz, 467.550 MHz and 467.575 MHz may be used by on-board communication stations. Where needed, equipment designed for 12.5 kHz channel spacing using also the additional frequencies 457.5375 MHz, 457.5625 MHz, 467.5375 MHz and 467.5625 MHz may be introduced for on-board communications. The use of these frequencies in territorial waters may be subject to the national regulations of the administration concerned. The characteristics of the equipment used shall conform to those specified in Recommendation ITU-R M.1174-2. (WRC-07)

5.288 In the territorial waters of the United States and the Philippines, the preferred frequencies for use by on-board communication stations shall be 457.525 MHz, 457.550 MHz, 457.575 MHz and 457.600 MHz paired, respectively, with 467.750 MHz, 467.775 MHz, 467.800 MHz and 467.825 MHz. The characteristics of the equipment used shall conform to those specified in Recommendation ITU-R M.1174-2. (WRC-07) (FCC)

5.289 Earth exploration-satellite service applications, other than the meteorological-satellite service, may also be used in the bands 460-470 MHz and 1690-1710 MHz for space-to-Earth transmissions subject to not causing harmful interference to stations operating in accordance with the Table.

5.290 Different category of service: in Afghanistan, Azerbaijan, Belarus, China, the Russian Federation, Japan, Mongolia, Kyrgyzstan, Slovakia, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 460-470 MHz to the meteorological-satellite service (space-to-Earth) is on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21. (WRC-07)

5.291 Additional allocation: in China, the band 470-485 MHz is also allocated to the space research (space-to-Earth) and the space operation (space-to-Earth) services on a primary basis subject to agreement obtained under No. 9.21 and subject to not causing harmful interference to existing and planned broadcasting stations.

5.291A Additional allocation: in Germany, Austria, Denmark, Estonia, Finland, Liechtenstein, Norway, Netherlands, the Czech Rep. and Switzerland, the band 470-494 MHz is also allocated to the radiolocation service on a secondary basis. This use is limited to the operation of wind profiler radars in accordance with Resolution 217 (WRC-97).

5.292 Different category of service: in Mexico, the allocation of the band 470-512 MHz to the fixed and mobile services, and in Argentina, Uruguay and Venezuela to the mobile service, is on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21. (WRC-07)

5.293 Different category of service: in Canada, Chile, Colombia, Cuba, the United States, Guyana, Honduras, Jamaica, Mexico, Panama and Peru, the allocation of the bands 470-512 MHz and 614-806 MHz to the fixed service is on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21. In Canada, Chile, Colombia, Cuba, the United States, Guyana, Honduras, Jamaica, Mexico, Panama and Peru, the allocation of the bands 470-512 MHz and 614-698 MHz to the mobile service is on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21. In Argentina and Ecuador, the allocation of the band 470-512 MHz to the fixed and mobile services is on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21. (WRC-07)

5.294 Additional allocation: in Saudi Arabia, Burundi, Cameroon, Côte d'Ivoire, Egypt, Ethiopia, Israel, the Libyan Arab Jamahiriya, Kenya, Malawi, the Syrian Arab Republic, Sudan, Chad and Yemen, the band 470-582 MHz is also allocated to the fixed service on a secondary basis. (WRC-07)

5.296 Additional allocation: in Germany, Saudi Arabia, Austria, Belgium, Côte d'Ivoire, Denmark, Egypt, Spain, Finland, France, Ireland, Israel, Italy, the Libyan Arab Jamahiriya, Jordan, Lithuania, Malta, Morocco, Monaco, Norway, Oman, the Netherlands, Portugal, the Syrian Arab Republic, the United Kingdom, Sweden, Switzerland, Swaziland and Tunisia, the band 470-790 MHz is also allocated on a secondary basis to the land mobile service, intended for applications ancillary to broadcasting. Stations of the land mobile service in the countries listed in this footnote shall not cause harmful interference to existing or planned stations operating in accordance with the Table in countries other than those listed in this footnote. (WRC-07)

5.297 Additional allocation: in Canada, Costa Rica, Cuba, El Salvador, the United States, Guatemala, Guyana, Honduras, Jamaica and Mexico, the band 512-608 MHz is also allocated to the fixed and mobile services on a primary basis, subject to agreement obtained under No. 9.21. (WRC-07)

5.298 Additional allocation: in India, the band 549.75-550.25 MHz is also allocated to the space operation service (space-to-Earth) on a secondary basis.

5.300 Additional allocation: in Saudi Arabia, Egypt, Israel, the Libyan Arab Jamahiriya, Jordan, Oman, the Syrian Arab Republic and Sudan, the band 582-790 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis. (WRC-07)

5.302 Additional allocation: in the United Kingdom, the band 590-598 MHz is also allocated to the aeronautical radionavigation service on a primary basis. All new assignments to stations in the aeronautical radionavigation service, including those transferred from the adjacent bands, shall be subject to coordination with the Administrations of the following countries: Germany, Belgium, Denmark, Spain, France, Ireland, Luxembourg, Morocco, Norway and the Netherlands.

5.304 Additional allocation: in the African Broadcasting Area (see Nos. 5.10 to 5.13), the band 606-614 MHz is also allocated to the radio astronomy service on a primary basis.

5.305 Additional allocation: in China, the band 606-614 MHz is also allocated to the radio astronomy service on a primary basis.

5.306 Additional allocation: in Region 1, except in the African Broadcasting Area (see Nos. 5.10 to 5.13), and in Region 3, the band 608-614 MHz is also allocated to the radio astronomy service on a secondary basis.

5.307 Additional allocation: in India, the band 608-614 MHz is also allocated to the radio astronomy service on a primary basis.

5.309 Different category of service: in Costa Rica, El Salvador and Honduras, the allocation of the band 614-806 MHz to the fixed service is on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21.

5.311A For the frequency band 620-790 MHz, see also Resolution 549 (WRC-07). (WRC-07)

5.312 Additional allocation: in Armenia, Azerbaijan, Belarus, Bulgaria, the Russian Federation, Georgia, Hungary, Kazakhstan, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Rep., Romania, Tajikistan, Turkmenistan and Ukraine, the band 645-862 MHz is also allocated to the aeronautical radionavigation service on a primary basis.

5.313A The band, or portions of the band 698-790 MHz, in Bangladesh, China, Korea (Rep. of), India, Japan, New Zealand, Papua New Guinea, Philippines and Singapore are identified for use by these administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of these bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. In China, the use of IMT in this band will not start until 2015. (WRC-07)

5.313B Different category of service: in Brazil, the allocation of the band 698-806 MHz to the mobile service is on a secondary basis (see No. 5.32). (WRC-07)

5.314 Additional allocation: in Austria, Italy, Moldova, Uzbekistan, Kyrgyzstan, the United Kingdom and Swaziland, the band 790-862 MHz is also allocated to the land mobile service on a secondary basis. (WRC-07)

5.315 Alternative allocation: in Greece, Italy and Tunisia, the band 790-838 MHz is allocated to the broadcasting service on a primary basis.

5.316 Additional allocation: in Germany, Saudi Arabia, Bosnia and Herzegovina, Burkina Faso, Cameroon, Côte d'Ivoire, Croatia, Denmark, Egypt, Finland, Greece, Israel, the Libyan Arab Jamahiriya, Jordan, Kenya, The Former Yugoslav Republic of Macedonia, Liechtenstein, Mali, Monaco, Montenegro, Norway, the Netherlands, Portugal, the United Kingdom, the Syrian Arab Republic, Serbia, Sweden and Switzerland, the band 790-830 MHz, and in these same countries and in Spain, France, Gabon and Malta, the band 830-862 MHz, are also allocated to the mobile, except aeronautical mobile, service on a primary basis. However, stations of the mobile service in the countries mentioned in connection with each band referred to in this footnote shall not cause harmful interference to, or claim protection from, stations of services operating in accordance with the Table in countries other than those mentioned in connection with the band. This allocation is effective until 16 June 2015. (WRC-07)

5.316A Additional allocation: in Spain, France, Gabon and Malta, the band 790-830 MHz, in Angola, Bahrain, Benin, Botswana, Congo (Rep. of the), French overseas departments and communities of Region 1, Gambia, Ghana, Guinea, Kuwait, Lesotho, Lebanon, Malawi, Morocco, Mauritania, Mozambique, Namibia, Niger, Oman, Uganda, Poland, Qatar, Rwanda, Senegal, Sudan, South Africa, Swaziland, Tanzania, Chad, Togo, Yemen, Zambia and Zimbabwe, the band 790-862 MHz, in Georgia, the band 806-862 MHz, and in Lithuania, the band 830-862 MHz is also allocated to the mobile, except aeronautical mobile, service on a primary basis subject to the agreement by the administrations concerned

obtained under No. 9.21 and under the GE06 Agreement, as appropriate, including those administrations mentioned in No. 5.312 where appropriate. However, stations of the mobile service in the countries mentioned in connection with each band referred to in this footnote shall not cause unacceptable interference to, nor claim protection from, stations of services operating in accordance with the Table in countries other than those mentioned in connection with the band. Frequency assignments to the mobile service under this allocation in Lithuania and Poland shall not be used without the agreement of the Russian Federation and Belarus. This allocation is effective until 16 June 2015. (WRC-07)

5.316B In Region 1, the allocation to the mobile, except aeronautical mobile, service on a primary basis in the frequency band 790-862 MHz shall come into effect from 17 June 2015 and shall be subject to agreement obtained under No. 9.21 with respect to the aeronautical radionavigation service in countries mentioned in No. 5.312. For countries party to the GE06 Agreement, the use of stations of the mobile service is also subject to the successful application of the procedures of that Agreement. Resolutions 224 (Rev.WRC-07) and 749 (WRC-07) shall apply. (WRC-07)

5.317 Additional allocation: in Region 2 (except Brazil and the United States), the band 806-890 MHz is also allocated to the mobile-satellite service on a primary basis, subject to agreement obtained under No. 9.21. The use of this service is intended for operation within national boundaries.

5.317A Those parts of the band 698-960 MHz in Region 2 and the band 790-960 MHz in Regions 1 and 3 which are allocated to the mobile service on a primary basis are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). See Resolutions 224 (Rev.WRC-07) and 749 (WRC-07). This identification does not preclude the use of these bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-07)

5.318 Additional allocation: in Canada, the United States and Mexico, the bands 849-851 MHz and 894-896 MHz are also allocated to the aeronautical mobile service on a primary basis, for public correspondence with aircraft. The use of the band 849-851 MHz is limited to transmissions from aeronautical stations and the use of the band 894-896 MHz is limited to transmissions from aircraft stations.

5.319 Additional allocation: in Belarus, the Russian Federation and Ukraine, the bands 806-840 MHz (Earth-to-space) and 856-890 MHz (space-to-Earth) are also allocated to the mobile-satellite, except aeronautical mobile-satellite (R), service. The use of these bands by this service shall not cause harmful interference to, or claim protection from, services in other countries operating in accordance with the Table of Frequency Allocations and is subject to special agreements between the administrations concerned.

5.320 Additional allocation: in Region 3, the bands 806-890 MHz and 942-960 MHz are also allocated to the mobile-satellite, except aeronautical mobile-satellite (R), service on a primary basis, subject to agreement obtained under No. 9.21. The use of this service is limited to operation within national boundaries. In seeking such agreement, appropriate protection shall be afforded to services operating in accordance with the Table, to ensure that no harmful interference is caused to such services.

5.322 In Region 1, in the band 862-960 MHz, stations of the broadcasting service shall be operated only in the African Broadcasting Area (see Nos. 5.10 to 5.13) excluding Algeria, Egypt, Spain, the Libyan Arab Jamahiriya, Morocco, Namibia, Nigeria, South Africa, Tanzania, Zimbabwe and Zambia, subject to agreement obtained under No. 9.21.

5.323 Additional allocation: in Armenia, Azerbaijan, Belarus, Bulgaria, the Russian Federation, Hungary, Kazakhstan, Moldova, Uzbekistan, Poland, Kyrgyzstan, Romania, Tajikistan, Turkmenistan and Ukraine, the band 862-960 MHz is also allocated to the aeronautical radionavigation service on a primary basis. Such use is subject to agreement obtained under No. 9.21 with administrations concerned and limited to ground-based radiobeacons in operation on 27 October 1997 until the end of their lifetime. (WRC-07)

5.325 Different category of service: in the United States, the allocation of the band 890-942 MHz to the radiolocation service is on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21.

5.325A Different category of service: in Cuba, the allocation of the band 902-915 MHz to the land mobile service is on a primary basis.

5.326 Different category of service: in Chile, the band 903-905 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis, subject to agreement obtained under No. 9.21.

5.327 Different category of service: in Australia, the allocation of the band 915-928 MHz to the radiolocation service is on a primary basis (see No. 5.33).

5.327A The use of the band 960-1164 MHz by the aeronautical mobile (R) service is limited to systems that operate in accordance with recognized international aeronautical standards. Such use shall be in accordance with Resolution 417 (WRC-07). (WRC-07)

5.328 The use of the band 960-1215 MHz by the aeronautical radionavigation service is reserved on a worldwide basis for the operation and development of airborne electronic aids to air navigation and any directly associated ground-based facilities.

5.328A Stations in the radionavigation-satellite service in the band 1164-1215 MHz shall operate in accordance with the provisions of Resolution 609 (Rev.WRC-07) and shall not claim protection from stations in the aeronautical radionavigation service in the band 960-1215 MHz. No. 5.43A does not apply. The provisions of No. 21.18 shall apply. (WRC-07)

5.328B The use of the bands 1164-1300 MHz, 1559-1610 MHz and 5010-5030 MHz by systems and networks in the radionavigation-satellite service for which complete coordination or notification information, as appropriate, is received by the Radiocommunication Bureau after 1 January 2005 is subject to the application of the provisions of Nos. 9.12, 9.12A and 9.13. Resolution 610 (WRC-03) shall also apply; however, in the case of radionavigation-satellite service (space-to-space) networks and systems, Resolution 610 (WRC-03) shall only apply to transmitting space stations. In accordance with No. 5.329A, for systems and networks in the radionavigation-satellite service (space-to-space) in the bands 1215-1300 MHz and 1559-1610 MHz, the provisions of Nos. 9.7, 9.12, 9.12A and 9.13 shall only apply with respect to other systems and networks in the radionavigation-satellite service (space-to-space). (WRC-07)

5.329 Use of the radionavigation-satellite service in the band 1215-1300 MHz shall be subject to the condition that no harmful interference is caused to, and no protection is claimed from, the radionavigation service authorized under No. 5.331. Furthermore, the use of the radionavigation-satellite service in the band 1215-1300 MHz shall be subject to the condition that no harmful interference is caused to the radiolocation service. No. 5.43 shall not apply in respect of the radiolocation service. Resolution 608 (WRC-03) shall apply.

5.329A Use of systems in the radionavigation-satellite service (space-to-space) operating in the bands 1215-1300 MHz and 1559-1610 MHz is not intended to provide safety service applications, and shall not impose any additional constraints on radionavigation-satellite service (space-to-Earth) systems or on other services operating in accordance with the Table of Frequency Allocations. (WRC-07)

5.330 Additional allocation: in Angola, Saudi Arabia, Bahrain, Bangladesh, Cameroon, China, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, the Libyan Arab Jamahiriya, Japan, Jordan, Kuwait, Lebanon, Mozambique, Nepal, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, Somalia, Sudan, Chad, Togo and Yemen, the band 1215-1300 MHz is also allocated to the fixed and mobile services on a primary basis.

5.331 Additional allocation: in Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Belarus, Belgium, Benin, Bosnia and Herzegovina, Brazil, Burkina Faso, Burundi, Cameroon, China, Korea (Rep. of), Croatia, Denmark, Egypt, the United Arab Emirates, Estonia, the Russian Federation,

Finland, France, Ghana, Greece, Guinea, Equatorial Guinea, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Ireland, Israel, Jordan, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lesotho, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Madagascar, Mali, Mauritania, Montenegro, Nigeria, Norway, Oman, the Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, Dem. People's Rep. of Korea, Slovakia, the United Kingdom, Serbia, Slovenia, Somalia, Sudan, Sri Lanka, South Africa, Sweden, Switzerland, Thailand, Togo, Turkey, Venezuela and Viet Nam, the band 1215-1300 MHz is also allocated to the radionavigation service on a primary basis. In Canada and the United States, the band 1240-1300 MHz is also allocated to the radionavigation service, and use of the radionavigation service shall be limited to the aeronautical radionavigation service. (WRC-07)

5.332 In the band 1215-1260 MHz, active spaceborne sensors in the Earth exploration-satellite and space research services shall not cause harmful interference to, claim protection from, or otherwise impose constraints on operation or development of the radiolocation service, the radionavigation-satellite service and other services allocated on a primary basis.

5.334 Additional allocation: in Canada and the United States, the band 1350-1370 MHz is also allocated to the aeronautical radionavigation service on a primary basis.

5.335 In Canada and the United States in the band 1240-1300 MHz, active spaceborne sensors in the Earth exploration-satellite and space research services shall not cause interference to, claim protection from, or otherwise impose constraints on operation or development of the aeronautical radionavigation service. (FCC)

5.335A In the band 1260-1300 MHz, active spaceborne sensors in the Earth exploration-satellite and space research services shall not cause harmful interference to, claim protection from, or otherwise impose constraints on operation or development of the radiolocation service and other services allocated by footnotes on a primary basis.

5.337 The use of the bands 1300-1350 MHz, 2700-2900 MHz and 9000-9200 MHz by the aeronautical radionavigation service is restricted to ground-based radars and to associated airborne transponders which transmit only on frequencies in these bands and only when actuated by radars operating in the same band.

5.337A The use of the band 1300-1350 MHz by earth stations in the radionavigation-satellite service and by stations in the radiolocation service shall not cause harmful interference to, nor constrain the operation and development of, the aeronautical-radionavigation service.

5.338 In Mongolia, Kyrgyzstan, Slovakia, the Czech Rep. and Turkmenistan, existing installations of the radionavigation service may continue to operate in the band 1350-1400 MHz. (WRC-07)

5.338A In the bands 1350-1400 MHz, 1427-1452 MHz, 22.55-23.55 GHz, 30-31.3 GHz, 49.7-50.2 GHz, 50.4-50.9 GHz and 51.4-52.6 GHz, Resolution 750 (WRC-07) applies. (WRC-07)

5.339 The bands 1370-1400 MHz, 2640-2655 MHz, 4950-4990 MHz and 15.20-15.35 GHz are also allocated to the space research (passive) and Earth exploration-satellite (passive) services on a secondary basis.

5.340 All emissions are prohibited in the following bands:

1400-1427 MHz,
2690-2700 MHz, except those provided for by No. 5.422,
10.68-10.7 GHz, except those provided for by No. 5.483,
15.35-15.4 GHz, except those provided for by No. 5.511,
23.6-24 GHz,
31.3-31.5 GHz,

31.5-31.8 GHz, in Region 2,
48.94-49.04 GHz, from airborne stations
50.2-50.4 GHz[2],
52.6-54.25 GHz,
86-92 GHz,
100-102 GHz,
109.5-111.8 GHz,
114.25-116 GHz,
148.5-151.5 GHz,
164-167 GHz,
182-185 GHz,
190-191.8 GHz,
200-209 GHz,
226-231.5 GHz,
250-252 GHz.

5.341 In the bands 1400-1727 MHz, 101-120 GHz and 197-220 GHz, passive research is being conducted by some countries in a programme for the search for intentional emissions of extraterrestrial origin.

5.342 Additional allocation: in Armenia, Azerbaijan, Belarus, Bulgaria, the Russian Federation, Uzbekistan, Kyrgystan and Ukraine, the band 1429-1535 MHz is also allocated to the aeronautical mobile service on a primary basis exclusively for the purposes of aeronautical telemetry within the national territory. As of 1 April 2007, the use of the band 1452-1492 MHz is subject to agreement between the administrations concerned.

5.343 In Region 2, the use of the band 1435-1535 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile service.

5.344 Alternative allocation: in the United States, the band 1452-1525 MHz is allocated to the fixed and mobile services on a primary basis (see also No. 5.343).

5.345 Use of the band 1452-1492 MHz by the broadcasting-satellite service, and by the broadcasting service, is limited to digital audio broadcasting and is subject to the provisions of Resolution 528 (Rev.WRC-03). (FCC)

5.348 The use of the band 1518-1525 MHz by the mobile-satellite service is subject to coordination under No. 9.11A. In the band 1518-1525 MHz stations in the mobile-satellite service shall not claim protection from the stations in the fixed service. No. 5.43A does not apply.

5.348A In the band 1518-1525 MHz, the coordination threshold in terms of the power flux-density levels at the surface of the Earth in application of No. 9.11A for space stations in the mobile-satellite (space-to-Earth) service, with respect to the land mobile service use for specialized mobile radios or used in conjunction with public switched telecommunication networks (PSTN) operating within the territory of Japan, shall be –150 dB(W/m²) in any 4 kHz band for all angles of arrival, instead of those given in Table 5-2 of Appendix 5. In the band 1518-1525 MHz stations in the mobile-satellite service shall not claim protection from stations in the mobile service in the territory of Japan. No. 5.43A does not apply.

5.348B In the band 1518-1525 MHz, stations in the mobile-satellite service shall not claim protection from aeronautical mobile telemetry stations in the mobile service in the territory of the United States (see Nos. 5.343 and 5.344) and in the countries listed in No. 5.342. No. 5.43A does not apply.

[2] 5.340.1 The allocation to the Earth exploration-satellite service (passive) and the space research service (passive) in the band 50.2-50.4 GHz should not impose undue constraints on the use of the adjacent bands by the primary allocated services in those bands.

5.349 Different category of service: in Saudi Arabia, Azerbaijan, Bahrain, Cameroon, Egypt, France, Iran (Islamic Republic of), Iraq, Israel, Kazakhstan, Kuwait, The Former Yugoslav Republic of Macedonia, Lebanon, Morocco, Qatar, Syrian Arab Republic, Kyrgyzstan, Turkmenistan and Yemen, the allocation of the band 1525-1530 MHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. 5.33). (WRC-07)

5.350 Additional allocation: in Azerbaijan, Kyrgyzstan and Turkmenistan, the band 1525-1530 MHz is also allocated to the aeronautical mobile service on a primary basis.

5.351 The bands 1525-1544 MHz, 1545-1559 MHz, 1626.5-1645.5 MHz and 1646.5-1660.5 MHz shall not be used for feeder links of any service. In exceptional circumstances, however, an earth station at a specified fixed point in any of the mobile-satellite services may be authorized by an administration to communicate via space stations using these bands.

5.351A For the use of the bands 1518-1544 MHz, 1545-1559 MHz, 1610-1645.5 MHz, 1646.5-1660.5 MHz, 1668-1675 MHz, 1980-2010 MHz, 2170-2200 MHz, 2483.5-2520 MHz and 2670-2690 MHz by the mobile-satellite service, see Resolutions 212 (Rev.WRC-07) and 225 (Rev.WRC-07). (WRC-07)

5.352A In the band 1525-1530 MHz, stations in the mobile-satellite service, except stations in the maritime mobile-satellite service, shall not cause harmful interference to, or claim protection from, stations of the fixed service in France and French overseas communities of Region 3, Algeria, Saudi Arabia, Egypt, Guinea, India, Israel, Italy, Jordan, Kuwait, Mali, Malta, Morocco, Mauritania, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syrian Arab Republic, Tanzania, Viet Nam and Yemen notified prior to 1 April 1998.

5.353A In applying the procedures of Section II of Article 9 to the mobile-satellite service in the bands 1530-1544 MHz and 1626.5-1645.5 MHz, priority shall be given to accommodating the spectrum requirements for distress, urgency and safety communications of the Global Maritime Distress and Safety System (GMDSS). Maritime mobile-satellite distress, urgency and safety communications shall have priority access and immediate availability over all other mobile satellite communications operating within a network. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, distress, urgency and safety communications of the GMDSS. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (The provisions of Resolution 222 (Rev.WRC-07) shall apply.) (FCC)

5.354 The use of the bands 1525-1559 MHz and 1626.5-1660.5 MHz by the mobile-satellite services is subject to coordination under No. 9.11A.

5.355 Additional allocation: in Bahrain, Bangladesh, Congo (Rep. of the), Egypt, Eritrea, Iraq, Israel, Kuwait, Lebanon, Malta, Qatar, Syrian Arab Republic, Somalia, Sudan, Chad, Togo and Yemen, the bands 1540-1559 MHz, 1610-1645.5 MHz and 1646.5-1660 MHz are also allocated to the fixed service on a secondary basis.

5.356 The use of the band 1544-1545 MHz by the mobile-satellite service (space-to-Earth) is limited to distress and safety communications (see Article 31).

5.357 Transmissions in the band 1545-1555 MHz from terrestrial aeronautical stations directly to aircraft stations, or between aircraft stations, in the aeronautical mobile (R) service are also authorized when such transmissions are used to extend or supplement the satellite-to-aircraft links.

5.357A In applying the procedures of Section II of Article 9 to the mobile-satellite service in the bands 1545-1555 MHz and 1646.5-1656.5 MHz, priority shall be given to accommodating the spectrum requirements of the aeronautical mobile-satellite (R) service providing transmission of messages with priority 1 to 6 in Article 44. Aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article 44 shall have priority access and immediate availability, by pre-emption if necessary, over all other mobile-satellite communications operating within a network. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, aeronautical mobile-satellite (R) service

communications with priority 1 to 6 in Article 44. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (The provisions of Resolution 222 (Rev.WRC-07) shall apply.) (FCC)

5.359 Additional allocation: in Germany, Saudi Arabia, Armenia, Austria, Azerbaijan, Belarus, Benin, Bulgaria, Cameroon, Spain, the Russian Federation, France, Gabon, Georgia, Greece, Guinea, Guinea-Bissau, the Libyan Arab Jamahiriya, Jordan, Kazakhstan, Kuwait, Lebanon, Lithuania, Mauritania, Moldova, Uganda, Uzbekistan, Pakistan, Poland, the Syrian Arab Republic, Kyrgyzstan, the Dem. People's Rep. of Korea, Romania, Swaziland, Tajikistan, Tanzania, Tunisia, Turkmenistan and Ukraine, the bands 1550-1559 MHz, 1610-1645.5 MHz and 1646.5-1660 MHz are also allocated to the fixed service on a primary basis. Administrations are urged to make all practicable efforts to avoid the implementation of new fixed-service stations in these bands. (WRC-07)

5.362A In the United States, in the bands 1555-1559 MHz and 1656.5-1660.5 MHz, the aeronautical mobile-satellite (R) service shall have priority access and immediate availability, by pre-emption if necessary, over all other mobile-satellite communications operating within a network. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article 44. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services.

5.362B Additional allocation: The band 1559-1610 MHz is also allocated to the fixed service on a primary basis until 1 January 2010 in Algeria, Saudi Arabia, Cameroon, Libyan Arab Jamahiriya, Jordan, Mali, Mauritania, Syrian Arab Republic and Tunisia. After this date, the fixed service may continue to operate on a secondary basis until 1 January 2015, at which time this allocation shall no longer be valid. The band 1559-1610 MHz is also allocated to the fixed service on a secondary basis in Algeria, Germany, Armenia, Azerbaijan, Belarus, Benin, Bulgaria, Spain, Russian Federation, France, Gabon, Georgia, Guinea, Guinea-Bissau, Kazakhstan, Lithuania, Moldova, Nigeria, Uganda, Uzbekistan, Pakistan, Poland, Kyrgyzstan, Dem. People's Rep. of Korea, Romania, Senegal, Swaziland, Tajikistan, Tanzania, Turkmenistan and Ukraine until 1 January 2015, at which time this allocation shall no longer be valid. Administrations are urged to take all practicable steps to protect the radionavigation-satellite service and the aeronautical radionavigation service and not authorize new frequency assignments to fixed-service systems in this band. (WRC-07)

5.362C Additional allocation: in Congo (Rep. of the), Egypt, Eritrea, Iraq, Israel, Jordan, Malta, Qatar, the Syrian Arab Republic, Somalia, Sudan, Chad, Togo and Yemen, the band 1559-1610 MHz is also allocated to the fixed service on a secondary basis until 1 January 2015, at which time this allocation shall no longer be valid. Administrations are urged to take all practicable steps to protect the radionavigation-satellite service and not authorize new frequency assignments to fixed-service systems in this band. (WRC-07)

5.364 The use of the band 1610-1626.5 MHz by the mobile-satellite service (Earth-to-space) and by the radiodetermination-satellite service (Earth-to-space) is subject to coordination under No. 9.11A. A mobile earth station operating in either of the services in this band shall not produce a peak e.i.r.p. density in excess of -15 dB(W/4 kHz) in the part of the band used by systems operating in accordance with the provisions of No. 5.366 (to which No. 4.10 applies), unless otherwise agreed by the affected administrations. In the part of the band where such systems are not operating, the mean e.i.r.p. density of a mobile earth station shall not exceed –3 dB(W/4 kHz). Stations of the mobile-satellite service shall not claim protection from stations in the aeronautical radionavigation service, stations operating in accordance with the provisions of No. 5.366 and stations in the fixed service operating in accordance with the provisions of No. 5.359. Administrations responsible for the coordination of mobile-satellite networks shall make all practicable efforts to ensure protection of stations operating in accordance with the provisions of No. 5.366.

5.365 The use of the band 1613.8-1626.5 MHz by the mobile-satellite service (space-to-Earth) is subject to coordination under No. 9.11A.

5.366 The band 1610-1626.5 MHz is reserved on a worldwide basis for the use and development of airborne electronic aids to air navigation and any directly associated ground-based or satellite-borne facilities. Such satellite use is subject to agreement obtained under No. 9.21.

5.367 Additional allocation: The bands 1610-1626.5 MHz and 5000-5150 MHz are also allocated to the aeronautical mobile-satellite (R) service on a primary basis, subject to agreement obtained under No. 9.21.

5.368 With respect to the radiodetermination-satellite and mobile-satellite services the provisions of No. 4.10 do not apply in the band 1610-1626.5 MHz, with the exception of the aeronautical radionavigation-satellite service.

5.369 Different category of service: in Angola, Australia, Burundi, China, Eritrea, Ethiopia, India, Iran (Islamic Republic of), Israel, the Libyan Arab Jamahiriya, Lebanon, Liberia, Madagascar, Mali, Pakistan, Papua New Guinea, Syrian Arab Republic, the Dem. Rep. of the Congo, Sudan, Swaziland, Togo and Zambia, the allocation of the band 1610-1626.5 MHz to the radiodetermination-satellite service (Earth-to-space) is on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21 from countries not listed in this provision.

5.370 Different category of service: in Venezuela, the allocation to the radiodetermination-satellite service in the band 1610-1626.5 MHz (Earth-to-space) is on a secondary basis.

5.371 Additional allocation: in Region 1, the bands 1610-1626.5 MHz (Earth-to-space) and 2483.5-2500 MHz (space-to-Earth) are also allocated to the radiodetermination-satellite service on a secondary basis, subject to agreement obtained under No. 9.21.

5.372 Harmful interference shall not be caused to stations of the radio astronomy service using the band 1610.6-1613.8 MHz by stations of the radiodetermination-satellite and mobile-satellite services (No. 29.13 applies).

5.374 Mobile earth stations in the mobile-satellite service operating in the bands 1631.5-1634.5 MHz and 1656.5-1660 MHz shall not cause harmful interference to stations in the fixed service operating in the countries listed in No. 5.359.

5.375 The use of the band 1645.5-1646.5 MHz by the mobile-satellite service (Earth-to-space) and for inter-satellite links is limited to distress and safety communications (see Article 31).

5.376 Transmissions in the band 1646.5-1656.5 MHz from aircraft stations in the aeronautical mobile (R) service directly to terrestrial aeronautical stations, or between aircraft stations, are also authorized when such transmissions are used to extend or supplement the aircraft-to-satellite links.

5.376A Mobile earth stations operating in the band 1660-1660.5 MHz shall not cause harmful interference to stations in the radio astronomy service.

5.379 Additional allocation: in Bangladesh, India, Indonesia, Nigeria and Pakistan, the band 1660.5-1668.4 MHz is also allocated to the meteorological aids service on a secondary basis.

5.379A Administrations are urged to give all practicable protection in the band 1660.5-1668.4 MHz for future research in radio astronomy, particularly by eliminating air-to-ground transmissions in the meteorological aids service in the band 1664.4-1668.4 MHz as soon as practicable.

5.379B The use of the band 1668-1675 MHz by the mobile-satellite service is subject to coordination under No. 9.11A. In the band 1668-1668.4 MHz, Resolution 904 (WRC-07) shall apply. (WRC-07)

5.379C In order to protect the radio astronomy service in the band 1668-1670 MHz, the aggregate power flux-density values produced by mobile earth stations in a network of the mobile-satellite service operating in this band shall not exceed –181 dB(W/m²) in 10 MHz and –194 dB(W/m²) in any 20 kHz at any radio astronomy station recorded in the Master International Frequency Register, for more than 2% of integration periods of 2000 s.

5.379D For sharing of the band 1668.4-1675 MHz between the mobile-satellite service and the fixed and mobile services, Resolution 744 (Rev.WRC-07) shall apply. (WRC-07)

5.379E In the band 1668.4-1675 MHz, stations in the mobile-satellite service shall not cause harmful interference to stations in the meteorological aids service in China, Iran (Islamic Republic of), Japan and Uzbekistan. In the band 1668.4-1675 MHz, administrations are urged not to implement new systems in the meteorological aids service and are encouraged to migrate existing meteorological aids service operations to other bands as soon as practicable.

5.380A In the band 1670-1675 MHz, stations in the mobile-satellite service shall not cause harmful interference to, nor constrain the development of, existing earth stations in the meteorological-satellite service notified before 1 January 2004. Any new assignment to these earth stations in this band shall also be protected from harmful interference from stations in the mobile-satellite service. (WRC-07)

5.381 Additional allocation: in Afghanistan, Costa Rica, Cuba, India, Iran (Islamic Republic of) and Pakistan, the band 1690-1700 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

5.382 Different category of service: in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Congo (Rep. of the), Egypt, the United Arab Emirates, Eritrea, Ethiopia, the Russian Federation, Guinea, Iraq, Israel, Jordan, Kazakhstan, Kuwait, the Former Yugoslav Republic of Macedonia, Lebanon, Mauritania, Moldova, Mongolia, Oman, Uzbekistan, Poland, Qatar, the Syrian Arab Republic, Kyrgyzstan, Serbia, Somalia, Tajikistan, Tanzania, Turkmenistan, Ukraine and Yemen, the allocation of the band 1690-1700 MHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. 5.33), and in the Dem. People's Rep. of Korea, the allocation of the band 1690-1700 MHz to the fixed service is on a primary basis (see No. 5.33) and to the mobile, except aeronautical mobile, service on a secondary basis. (WRC-07)

5.384 Additional allocation: in India, Indonesia and Japan, the band 1700-1710 MHz is also allocated to the space research service (space-to-Earth) on a primary basis.

5.384A The bands, or portions of the bands, 1710-1885 MHz, 2300-2400 MHz and 2500-2690 MHz, are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution 223 (Rev.WRC-07). This identification does not preclude the use of these bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-07)

5.385 Additional allocation: the band 1718.8-1722.2 MHz is also allocated to the radio astronomy service on a secondary basis for spectral line observations.

5.386 Additional allocation: the band 1750-1850 MHz is also allocated to the space operation (Earth-to-space) and space research (Earth-to-space) services in Region 2, in Australia, Guam, India, Indonesia and Japan on a primary basis, subject to agreement obtained under No. 9.21, having particular regard to troposcatter systems.

5.387 Additional allocation: in Belarus, Georgia, Kazakhstan, Mongolia, Kyrgyzstan, Slovakia, Romania, Tajikistan and Turkmenistan, the band 1770-1790 MHz is also allocated to the meteorological-satellite service on a primary basis, subject to agreement obtained under No. 9.21. (WRC-07)

5.388 The bands 1885-2025 MHz and 2110-2200 MHz are intended for use, on a worldwide basis, by administrations wishing to implement International Mobile Telecommunications-2000 (IMT-2000). Such use does not preclude the use of these bands by other services to which they are allocated. The bands should be made available for IMT-2000 in accordance with Resolution 212 (Rev.WRC-07). (See also Resolution 223 (Rev.WRC-07).) (FCC)

5.388A In Regions 1 and 3, the bands 1885-1980 MHz, 2010-2025 MHz and 2110-2170 MHz and, in Region 2, the bands 1885-1980 MHz and 2110-2160 MHz may be used by high altitude platform stations as base stations to provide International Mobile Telecommunications-2000 (IMT-2000), in

accordance with Resolution 221 (Rev.WRC-07). Their use by IMT-2000 applications using high altitude platform stations as base stations does not preclude the use of these bands by any station in the services to which they are allocated and does not establish priority in the Radio Regulations. (FCC)

5.388B In Algeria, Saudi Arabia, Bahrain, Benin, Burkina Faso, Cameroon, Comoros, Côte d'Ivoire, China, Cuba, Djibouti, Egypt, United Arab Emirates, Eritrea, Ethiopia, Gabon, Ghana, India, Iran (Islamic Republic of), Israel, the Libyan Arab Jamahiriya, Jordan, Kenya, Kuwait, Mali, Morocco, Mauritania, Nigeria, Oman, Uganda, Qatar, the Syrian Arab Republic, Senegal, Singapore, Sudan, Tanzania, Chad, Togo, Tunisia, Yemen, Zambia and Zimbabwe, for the purpose of protecting fixed and mobile services, including IMT-2000 mobile stations, in their territories from co-channel interference, a high altitude platform station (HAPS) operating as an IMT-2000 base station in neighbouring countries, in the bands referred to in No. 5.388A, shall not exceed a co-channel power flux-density of -127 dB(W/(m² · MHz)) at the Earth's surface outside a country's borders unless explicit agreement of the affected administration is provided at the time of the notification of HAPS.

5.389A The use of the bands 1980-2010 MHz and 2170-2200 MHz by the mobile-satellite service is subject to coordination under No. 9.11A and to the provisions of Resolution 716 (Rev.WRC-2000). (WRC-07)

5.389B The use of the band 1980-1990 MHz by the mobile-satellite service shall not cause harmful interference to or constrain the development of the fixed and mobile services in Argentina, Brazil, Canada, Chile, Ecuador, the United States, Honduras, Jamaica, Mexico, Peru, Suriname, Trinidad and Tobago, Uruguay and Venezuela.

5.389C The use of the bands 2010-2025 MHz and 2160-2170 MHz in Region 2 by the mobile-satellite service is subject to coordination under No. 9.11A and to the provisions of Resolution 716 (Rev.WRC-2000). (WRC-07)

5.389E The use of the bands 2010-2025 MHz and 2160-2170 MHz by the mobile-satellite service in Region 2 shall not cause harmful interference to or constrain the development of the fixed and mobile services in Regions 1 and 3.

5.389F In Algeria, Benin, Cape Verde, Egypt, Iran (Islamic Republic of), Mali, Syrian Arab Republic and Tunisia, the use of the bands 1980-2010 MHz and 2170-2200 MHz by the mobile-satellite service shall neither cause harmful interference to the fixed and mobile services, nor hamper the development of those services prior to 1 January 2005, nor shall the former service request protection from the latter services.

5.391 In making assignments to the mobile service in the bands 2025-2110 MHz and 2200-2290 MHz, administrations shall not introduce high-density mobile systems, as described in Recommendation ITU-R SA.1154, and shall take that Recommendation into account for the introduction of any other type of mobile system.

5.392 Administrations are urged to take all practicable measures to ensure that space-to-space transmissions between two or more non-geostationary satellites, in the space research, space operations and Earth exploration-satellite services in the bands 2025-2110 MHz and 2200-2290 MHz, shall not impose any constraints on Earth-to-space, space-to-Earth and other space-to-space transmissions of those services and in those bands between geostationary and non-geostationary satellites.

5.393 Additional allocation: in Canada, the United States, India and Mexico, the band 2310-2360 MHz is also allocated to the broadcasting-satellite service (sound) and complementary terrestrial sound broadcasting service on a primary basis. Such use is limited to digital audio broadcasting and is subject to the provisions of Resolution 528 (Rev.WRC-03), with the exception of resolves 3 in regard to the limitation on broadcasting-satellite systems in the upper 25 MHz. (WRC-07)

5.394 In the United States, the use of the band 2300-2390 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile services. In Canada, the use of the band 2360-2400 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile services. (WRC-07)

5.395 In France and Turkey, the use of the band 2310-2360 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile service.

5.396 Space stations of the broadcasting-satellite service in the band 2310-2360 MHz operating in accordance with No. 5.393 that may affect the services to which this band is allocated in other countries shall be coordinated and notified in accordance with Resolution 33 (Rev.WRC-03). Complementary terrestrial broadcasting stations shall be subject to bilateral coordination with neighbouring countries prior to their bringing into use. (FCC)

5.397 Different category of service: in France, the band 2450-2500 MHz is allocated on a primary basis to the radiolocation service (see No. 5.33). Such use is subject to agreement with administrations having services operating or planned to operate in accordance with the Table of Frequency Allocations which may be affected.

5.398 In respect of the radiodetermination-satellite service in the band 2483.5-2500 MHz, the provisions of No. 4.10 do not apply.

5.399 In Region 1, in countries other than those listed in No. 5.400, harmful interference shall not be caused to, or protection shall not be claimed from, stations of the radiolocation service by stations of the radiodetermination satellite service.

5.400 Different category of service: in Angola, Australia, Bangladesh, Burundi, China, Eritrea, Ethiopia, India, Iran (Islamic Republic of), the Libyan Arab Jamahiriya, Lebanon, Liberia, Madagascar, Mali, Pakistan, Papua New Guinea, the Dem. Rep. of the Congo, the Syrian Arab Republic, Sudan, Swaziland, Togo and Zambia, the allocation of the band 2483.5-2500 MHz to the radiodetermination-satellite service (space-to-Earth) is on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21 from countries not listed in this provision.

5.402 The use of the band 2483.5-2500 MHz by the mobile-satellite and the radiodetermination-satellite services is subject to the coordination under No. 9.11A. Administrations are urged to take all practicable steps to prevent harmful interference to the radio astronomy service from emissions in the 2483.5-2500 MHz band, especially those caused by second-harmonic radiation that would fall into the 4990-5000 MHz band allocated to the radio astronomy service worldwide.

5.403 Subject to agreement obtained under No. 9.21, the band 2520-2535 MHz may also be used for the mobile-satellite (space-to-Earth), except aeronautical mobile-satellite, service for operation limited to within national boundaries. The provisions of No. 9.11A apply. (WRC-07)

5.404 Additional allocation: in India and Iran (Islamic Republic of), the band 2500-2516.5 MHz may also be used for the radiodetermination-satellite service (space-to-Earth) for operation limited to within national boundaries, subject to agreement obtained under No. 9.21.

5.405 Additional allocation: in France, the band 2500-2550 MHz is also allocated to the radiolocation service on a primary basis. Such use is subject to agreement with the administrations having services operating or planned to operate in accordance with the Table which may be affected.

5.407 In the band 2500-2520 MHz, the power flux-density at the surface of the Earth from space stations operating in the mobile-satellite (space-to-Earth) service shall not exceed –152 dB ($W/(m^2 \cdot 4$ kHz)) in Argentina, unless otherwise agreed by the administrations concerned.

5.410 The band 2500-2690 MHz may be used for tropospheric scatter systems in Region 1, subject to agreement obtained under No. 9.21. Administrations shall make all practicable efforts to avoid developing new tropospheric scatter systems in this band. When planning new tropospheric scatter

radio-relay links in this band, all possible measures shall be taken to avoid directing the antennas of these links towards the geostationary-satellite orbit. (WRC-07)

5.412 Alternative allocation: in Azerbaijan, Kyrgyzstan and Turkmenistan, the band 2500-2690 MHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-07)

5.413 In the design of systems in the broadcasting-satellite service in the bands between 2500 MHz and 2690 MHz, administrations are urged to take all necessary steps to protect the radio astronomy service in the band 2690-2700 MHz.

5.414 The allocation of the frequency band 2500-2520 MHz to the mobile-satellite service (space-to-Earth) is subject to coordination under No. 9.11A. (WRC-07)

5.414A In Japan and India, the use of the bands 2500-2520 MHz and 2520-2535 MHz, under No. 5.403, by a satellite network in the mobile-satellite service (space-to-Earth) is limited to operation within national boundaries and subject to the application of No. 9.11A. The following pfd values shall be used as a threshold for coordination under No. 9.11A, for all conditions and for all methods of modulation, in an area of 1000 km around the territory of the administration notifying the mobile-satellite service network:

-136 dB(W/(m² · MHz)) for $0° \leq \theta \leq 5°$
$-136 + 0.55 (\theta - 5)$ dB(W/(m² · MHz)) for $5° < \theta \leq 25°$
-125 dB(W/(m² · MHz)) for $25° < \theta \leq 90°$

where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees. Outside this area Table 21-4 of Article 21 shall apply. Furthermore, the coordination thresholds in Table 5-2 of Annex 1 to Appendix 5 of the Radio Regulations (Edition of 2004), in conjunction with the applicable provisions of Articles 9 and 11 associated with No. 9.11A, shall apply to systems for which complete notification information has been received by the Radicommunication Bureau by 14 November 2007 and that have been brought into use by that date. (WRC-07)

5.415 The use of the bands 2500-2690 MHz in Region 2 and 2500-2535 MHz and 2655-2690 MHz in Region 3 by the fixed-satellite service is limited to national and regional systems, subject to agreement obtained under No. 9.21, giving particular attention to the broadcasting-satellite service in Region 1. (WRC-07)

5.415A Additional allocation: in India and Japan, subject to agreement obtained under No. 9.21, the band 2515-2535 MHz may also be used for the aeronautical mobile-satellite service (space-to-Earth) for operation limited to within their national boundaries.

5.416 The use of the band 2520-2670 MHz by the broadcasting-satellite service is limited to national and regional systems for community reception, subject to agreement obtained under No. 9.21. The provisions of No. 9.19 shall be applied by administrations in this band in their bilateral and multilateral negotiations. (WRC-07)

5.417A In applying provision No. 5.418, in Korea (Rep. of) and Japan, resolves 3 of Resolution 528 (Rev.WRC-03) is relaxed to allow the broadcasting-satellite service (sound) and the complementary terrestrial broadcasting service to additionally operate on a primary basis in the band 2605-2630 MHz. This use is limited to systems intended for national coverage. An administration listed in this provision shall not have simultaneously two overlapping frequency assignments, one under this provision and the other under No. 5.416. The provisions of No. 5.416 and Table 21-4 of Article 21 do not apply. Use of non-geostationary-satellite systems in the broadcasting-satellite service (sound) in the band 2605-2630 MHz is subject to the provisions of Resolution 539 (Rev.WRC-03). The power flux-density at the Earth's surface produced by emissions from a geostationary broadcasting-satellite service (sound) space station operating in the band 2605-2630 MHz for which complete Appendix 4 coordination information, or notification information, has been received after 4 July 2003, for all conditions and for all methods of modulation, shall not exceed the following limits:

-130 dB(W/(m² · MHz)) for $0° \leq \theta \leq 5°$
$-130 + 0.4 (\theta - 5)$ dB(W/(m² · MHz))
for $5° < \theta \leq 25°$
-122 dB(W/(m² · MHz)) for $25° < \theta \leq 90°$

where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees. These limits may be exceeded on the territory of any country whose administration has so agreed. In the case of the broadcasting-satellite service (sound) networks of Korea (Rep. of), as an exception to the limits above, the power flux-density value of –122 dB(W/(m² · MHz)) shall be used as a threshold for coordination under No. 9.11 in an area of 1000 km around the territory of the administration notifying the broadcasting-satellite service (sound) system, for angles of arrival greater than 35°.

5.417B In Korea (Rep. of) and Japan, use of the band 2605-2630 MHz by non-geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No. 5.417A, for which complete Appendix 4 coordination information, or notification information, has been received after 4 July 2003, is subject to the application of the provisions of No. 9.12A, in respect of geostationary-satellite networks for which complete Appendix 4 coordination information, or notification information, is considered to have been received after 4 July 2003, and No. 22.2 does not apply. No. 22.2 shall continue to apply with respect to geostationary-satellite networks for which complete Appendix 4 coordination information, or notification information, is considered to have been received before 5 July 2003.

5.417C Use of the band 2605-2630 MHz by non-geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No. 5.417A, for which complete Appendix 4 coordination information, or notification information, has been received after 4 July 2003, is subject to the application of the provisions of No. 9.12.

5.417D Use of the band 2605-2630 MHz by geostationary-satellite networks for which complete Appendix 4 coordination information, or notification information, has been received after 4 July 2003 is subject to the application of the provisions of No. 9.13 with respect to non-geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No. 5.417A, and No. 22.2 does not apply.

5.418 Additional allocation: in Korea (Rep. of), India, Japan, Pakistan and Thailand, the band 2535-2655 MHz is also allocated to the broadcasting-satellite service (sound) and complementary terrestrial broadcasting service on a primary basis. Such use is limited to digital audio broadcasting and is subject to the provisions of Resolution 528 (Rev.WRC-03). The provisions of No. 5.416 and Table 21-4 of Article 21, do not apply to this additional allocation. Use of non-geostationary-satellite systems in the broadcasting-satellite service (sound) is subject to Resolution 539 (Rev.WRC-03). Geostationary broadcasting-satellite service (sound) systems for which complete Appendix 4 coordination information has been received after 1 June 2005 are limited to systems intended for national coverage. The power flux-density at the Earth's surface produced by emissions from a geostationary broadcasting-satellite service (sound) space station operating in the band 2630-2655 MHz, and for which complete Appendix 4 coordination information has been received after 1 June 2005, shall not exceed the following limits, for all conditions and for all methods of modulation:

-130 dB(W/(m² · MHz)) for $0° \leq \theta \leq 5°$
$-130 + 0.4 (\theta - 5)$ dB(W/(m² · MHz))
for $5° < \theta \leq 25°$
-122 dB(W/(m² · MHz)) for $25° < \theta \leq 90°$

where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees. These limits may be exceeded on the territory of any country whose administration has so agreed. As an exception to the limits above, the pfd value of –122 dB(W/(m² · MHz)) shall be used as a threshold for coordination under No. 9.11 in an area of 1500 km around the territory of the administration notifying the broadcasting-satellite service (sound) system.

In addition, an administration listed in this provision shall not have simultaneously two overlapping frequency assignments, one under this provision and the other under No. 5.416 for systems for which complete Appendix 4 coordination information has been received after 1 June 2005. (WRC-07)

5.418A In certain Region 3 countries listed in No. 5.418, use of the band 2630-2655 MHz by non-geostationary-satellite systems in the broadcasting-satellite service (sound) for which complete Appendix 4 coordination information, or notification information, has been received after 2 June 2000, is subject to the application of the provisions of No. 9.12A, in respect of geostationary-satellite networks for which complete Appendix 4 coordination information, or notification information, is considered to have been received after 2 June 2000, and No. 22.2 does not apply. No. 22.2 shall continue to apply with respect to geostationary-satellite networks for which complete Appendix 4 coordination information, or notification information, is considered to have been received before 3 June 2000.

5.418B Use of the band 2630-2655 MHz by non-geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No. 5.418, for which complete Appendix 4 coordination information, or notification information, has been received after 2 June 2000, is subject to the application of the provisions of No. 9.12.

5.418C Use of the band 2630-2655 MHz by geostationary-satellite networks for which complete Appendix 4 coordination information, or notification information, has been received after 2 June 2000 is subject to the application of the provisions of No. 9.13 with respect to non-geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No. 5.418 and No. 22.2 does not apply.

5.419 When introducing systems of the mobile-satellite service in the band 2670-2690 MHz, administrations shall take all necessary steps to protect the satellite systems operating in this band prior to 3 March 1992. The coordination of mobile-satellite systems in the band shall be in accordance with No. 9.11A. (WRC-07)

5.420 The band 2655-2670 MHz may also be used for the mobile-satellite (Earth-to-space), except aeronautical mobile-satellite, service for operation limited to within national boundaries, subject to agreement obtained under No. 9.21. The coordination under No. 9.11A applies. (WRC-07)

5.422 Additional allocation: in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Brunei Darussalam, Congo (Rep. of the), Côte d'Ivoire, Cuba, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Gabon, Georgia, Guinea, Guinea-Bissau, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, Lebanon, Mauritania, Moldova, Mongolia, Montenegro, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syrian Arab Republic, Kyrgyzstan, the Dem. Rep. of the Congo, Romania, Somalia, Tajikistan, Tunisia, Turkmenistan, Ukraine and Yemen, the band 2690-2700 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. Such use is limited to equipment in operation by 1 January 1985. (WRC-07)

5.423 In the band 2700-2900 MHz, ground-based radars used for meteorological purposes are authorized to operate on a basis of equality with stations of the aeronautical radionavigation service.

5.424 Additional allocation: in Canada, the band 2850-2900 MHz is also allocated to the maritime radionavigation service, on a primary basis, for use by shore-based radars.

5.424A In the band 2900-3100 MHz, stations in the radiolocation service shall not cause harmful interference to, nor claim protection from, radar systems in the radionavigation service.

5.425 In the band 2900-3100 MHz, the use of the shipborne interrogator-transponder (SIT) system shall be confined to the sub-band 2930-2950 MHz.

5.426 The use of the band 2900-3100 MHz by the aeronautical radionavigation service is limited to ground-based radars.

5.427 In the bands 2900-3100 MHz and 9300-9500 MHz, the response from radar transponders shall not be capable of being confused with the response from radar beacons (racons) and shall not cause interference to ship or aeronautical radars in the radionavigation service, having regard, however, to No. 4.9.

5.428 Additional allocation: in Azerbaijan, Mongolia, Kyrgyzstan, Romania and Turkmenistan, the band 3100-3300 MHz is also allocated to the radionavigation service on a primary basis. (WRC-07)

5.429 Additional allocation: in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, China, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, the United Arab Emirates, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, the Libyan Arab Jamahiriya, Japan, Jordan, Kenya, Kuwait, Lebanon, Malaysia, Oman, Uganda, Pakistan, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea and Yemen, the band 3300-3400 MHz is also allocated to the fixed and mobile services on a primary basis. The countries bordering the Mediterranean shall not claim protection for their fixed and mobile services from the radiolocation service. (WRC-07)

5.430 Additional allocation: in Azerbaijan, Mongolia, Kyrgyzstan, Romania and Turkmenistan, the band 3300-3400 MHz is also allocated to the radionavigation service on a primary basis. (WRC-07)

5.430A Different category of service: in Albania, Algeria, Germany, Andorra, Saudi Arabia, Austria, Azerbaijan, Bahrain, Belgium, Benin, Bosnia and Herzegovina, Botswana, Bulgaria, Burkina Faso, Cameroon, Cyprus, Vatican, Congo (Rep. of the), Côte d'Ivoire, Croatia, Denmark, Egypt, Spain, Estonia, Finland, France and French overseas departments and communities in Region 1, Gabon, Georgia, Greece, Guinea, Hungary, Ireland, Iceland, Israel, Italy, Jordan, Kuwait, Lesotho, Latvia, The Former Yugoslav Republic of Macedonia, Liechtenstein, Lithuania, Malawi, Mali, Malta, Morocco, Mauritania, Moldova, Monaco, Mongolia, Montenegro, Mozambique, Namibia, Niger, Norway, Oman, Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, Slovakia, Czech Rep., Romania, United Kingdom, San Marino, Senegal, Serbia, Sierra Leone, Slovenia, South Africa, Sweden, Switzerland, Swaziland, Chad, Togo, Tunisia, Turkey, Ukraine, Zambia and Zimbabwe, the band 3400-3600 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis subject to agreement obtained under No. 9.21 with other administrations and is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. 9.17 and 9.18 also apply. Before an administration brings into use a (base or mobile) station of the mobile service in this band, it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed -154.5 dB(W/(m² · 4 kHz)) for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the band 3400-3600 MHz shall not claim more protection from space stations than that provided in Table 21-4 of the Radio Regulations (Edition of 2004). This allocation is effective from 17 November 2010. (WRC-07)

5.431 Additional allocation: in Germany, Israel and the United Kingdom, the band 3400-3475 MHz is also allocated to the amateur service on a secondary basis.

5.431A Different category of service: in Argentina, Brazil, Chile, Costa Rica, Cuba, Dominican Republic, El Salvador, Guatemala, Mexico, Paraguay, Suriname, Uruguay, Venezuela and French overseas departments and communities in Region 2, the band 3400-3500 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis, subject to agreement obtained under No. 9.21. Stations of the mobile service in the band 3400-3500 MHz shall not claim more protection from space stations than that provided in Table 21-4 of the Radio Regulations (Edition of 2004). (WRC-07)

5.432 Different category of service: in Korea (Rep. of), Japan and Pakistan, the allocation of the band 3400-3500 MHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. 5.33).

5.432A In Korea (Rep. of), Japan and Pakistan, the band 3400-3500 MHz is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. 9.17 and 9.18 also apply. Before an administration brings into use a (base or mobile) station of the mobile service in this band it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed −154.5 dB(W/(m² · 4 kHz)) for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the band 3400-3500 MHz shall not claim more protection from space stations than that provided in Table 21-4 of the Radio Regulations (Edition of 2004). (WRC-07)

5.432B Different category of service: in Bangladesh, China, India, Iran (Islamic Republic of), New Zealand, Singapore and French overseas communities in Region 3, the band 3400-3500 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis, subject to agreement obtained under No. 9.21 with other administrations and is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. 9.17 and 9.18 also apply. Before an administration brings into use a (base or mobile) station of the mobile service in this band it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed −154.5 dB(W/(m² · 4 kHz)) for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station) with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the band 3400-3500 MHz shall not claim more protection from space stations than that provided in Table 21-4 of the Radio Regulations (Edition of 2004). This allocation is effective from 17 November 2010. (WRC-07)

5.433 In Regions 2 and 3, in the band 3400-3600 MHz the radiolocation service is allocated on a primary basis. However, all administrations operating radiolocation systems in this band are urged to cease operations by 1985. Thereafter, administrations shall take all practicable steps to protect the fixed-satellite service and coordination requirements shall not be imposed on the fixed-satellite service.

5.433A In Bangladesh, China, Korea (Rep. of), India, Iran (Islamic Republic of), Japan, New Zealand, Pakistan and French overseas communities in Region 3, the band 3500-3600 MHz is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. 9.17 and 9.18 also apply. Before an administration brings into use a (base or mobile) station of the mobile service in this band it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed −154.5 dB (W/(m² · 4 kHz)) for more than 20% of time at the border of the territory of any other administration.

This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the band 3500-3600 MHz shall not claim more protection from space stations than that provided in Table 21-4 of the Radio Regulations (Edition of 2004). (WRC-07)

5.435 In Japan, in the band 3620-3700 MHz, the radiolocation service is excluded.

5.438 Use of the band 4200-4400 MHz by the aeronautical radionavigation service is reserved exclusively for radio altimeters installed on board aircraft and for the associated transponders on the ground. However, passive sensing in the Earth exploration-satellite and space research services may be authorized in this band on a secondary basis (no protection is provided by the radio altimeters).

5.439 Additional allocation: in Iran (Islamic Republic of) and Libyan Arab Jamahiriya, the band 4200-4400 MHz is also allocated to the fixed service on a secondary basis.

5.440 The standard frequency and time signal-satellite service may be authorized to use the frequency 4202 MHz for space-to-Earth transmissions and the frequency 6427 MHz for Earth-to-space transmissions. Such transmissions shall be confined within the limits of ± 2 MHz of these frequencies, subject to agreement obtained under No. 9.21.

5.440A In Region 2 (except Brazil, Cuba, French overseas departments and communities, Guatemala, Paraguay, Uruguay and Venezuela), and in Australia, the band 4400-4940 MHz may be used for aeronautical mobile telemetry for flight testing by aircraft stations (see No. 1.83). Such use shall be in accordance with Resolution 416 (WRC-07) and shall not cause harmful interference to, nor claim protection from, the fixed-satellite and fixed services. Any such use does not preclude the use of these bands by other mobile service applications or by other services to which these bands are allocated on a co-primary basis and does not establish priority in the Radio Regulations. (WRC-07)

5.441 The use of the bands 4500-4800 MHz (space-to-Earth), 6725-7025 MHz (Earth-to-space) by the fixed-satellite service shall be in accordance with the provisions of Appendix 30B. The use of the bands 10.7-10.95 GHz (space-to-Earth), 11.2-11.45 GHz (space-to-Earth) and 12.75-13.25 GHz (Earth-to-space) by geostationary-satellite systems in the fixed-satellite service shall be in accordance with the provisions of Appendix 30B. The use of the bands 10.7-10.95 GHz (space-to-Earth), 11.2-11.45 GHz (space-to-Earth) and 12.75-13.25 GHz (Earth-to-space) by a non-geostationary-satellite system in the fixed-satellite service is subject to application of the provisions of No. 9.12 for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the fixed-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. 5.43A does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated.

5.442 In the bands 4825-4835 MHz and 4950-4990 MHz, the allocation to the mobile service is restricted to the mobile, except aeronautical mobile, service. In Region 2 (except Brazil, Cuba, Guatemala, Paraguay, Uruguay and Venezuela), and in Australia, the band 4825-4835 MHz is also allocated to the aeronautical mobile service, limited to aeronautical mobile telemetry for flight testing by aircraft stations. Such use shall be in accordance with Resolution 416 (WRC-07) and shall not cause harmful interference to the fixed service. (WRC-07)

5.443 Different category of service: in Argentina, Australia and Canada, the allocation of the bands 4825-4835 MHz and 4950-4990 MHz to the radio astronomy service is on a primary basis (see No. 5.33).

5.443B In order not to cause harmful interference to the microwave landing system operating above 5030 MHz, the aggregate power flux-density produced at the Earth's surface in the band 5030-5150 MHz by all the space stations within any radionavigation-satellite service system (space-to-Earth) operating in the band 5010-5030 MHz shall not exceed –124.5 dB(W/m²) in a 150 kHz band. In order not to cause harmful interference to the radio astronomy service in the band 4990-5000 MHz, radionavigation-satellite service systems operating in the band 5010-5030 MHz shall comply with the limits in the band 4990-5000 MHz defined in Resolution 741 (WRC-03).

5.444 The band 5030-5150 MHz is to be used for the operation of the international standard system (microwave landing system) for precision approach and landing. In the band 5030-5091 MHz, the requirements of this system shall take precedence over other uses of this band. For the use of the band 5091-5150 MHz, No. 5.444A and Resolution 114 (Rev.WRC-03) apply. (WRC-07)

5.444A Additional allocation: the band 5091-5150 MHz is also allocated to the fixed-satellite service (Earth-to-space) on a primary basis. This allocation is limited to feeder links of non-geostationary satellite systems in the mobile-satellite service and is subject to coordination under No. 9.11A.

In the band 5091-5150 MHz, the following conditions also apply:

– prior to 1 January 2018, the use of the band 5091-5150 MHz by feeder links of non-geostationary-satellite systems in the mobile-satellite service shall be made in accordance with Resolution 114 (Rev.WRC-03);
– after 1 January 2016, no new assignments shall be made to earth stations providing feeder links of non-geostationary mobile-satellite systems;
– after 1 January 2018, the fixed-satellite service will become secondary to the aeronautical radionavigation service. (WRC-07)

5.444B The use of the band 5091-5150 MHz by the aeronautical mobile service is limited to:

– systems operating in the aeronautical mobile (R) service and in accordance with international aeronautical standards, limited to surface applications at airports. Such use shall be in accordance with Resolution 748 (WRC-07);
– aeronautical telemetry transmissions from aircraft stations (see No. 1.83) in accordance with Resolution 418 (WRC-07);
– aeronautical security transmissions. Such use shall be in accordance with Resolution 419 (WRC-07). (WRC-07)

5.446 Additional allocation: in the countries listed in Nos. 5.369 and 5.400, the band 5150-5216 MHz is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis, subject to agreement obtained under No. 9.21. In Region 2, the band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis. In Regions 1 and 3, except those countries listed in Nos. 5.369 and 5.400, the band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a secondary basis. The use by the radiodetermination-satellite service is limited to feeder links in conjunction with the radiodetermination-satellite service operating in the bands 1610-1626.5 MHz and/or 2483.5-2500 MHz. The total power flux-density at the Earth's surface shall in no case exceed –159 dB (W/m²) in any 4 kHz band for all angles of arrival.

5.446A The use of the bands 5150-5350 MHz and 5470-5725 MHz by the stations in the mobile, except aeronautical mobile, service shall be in accordance with Resolution 229 (WRC-03). (WRC-07)

5.446B In the band 5150-5250 MHz, stations in the mobile service shall not claim protection from earth stations in the fixed-satellite service. No. 5.43A does not apply to the mobile service with respect to fixed-satellite service earth stations.

5.446C Additional allocation: in Region 1 (except in Algeria, Saudi Arabia, Bahrain, Egypt, United Arab Emirates, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Syrian Arab Republic, Sudan and Tunisia) and in Brazil, the band 5150-5250 MHz is also allocated to the aeronautical mobile service on a primary basis, limited to aeronautical telemetry transmissions from aircraft stations (see No. 1.83), in accordance with Resolution 418 (WRC-07). These stations shall not claim protection from other stations operating in accordance with Article 5. No. 5.43A does not apply. (WRC-07)

5.447 Additional allocation: in Côte d'Ivoire, Israel, Lebanon, Pakistan, the Syrian Arab Republic and Tunisia, the band 5150-5250 MHz is also allocated to the mobile service, on a primary basis, subject to agreement obtained under No. 9.21. In this case, the provisions of Resolution 229 (WRC-03) do not apply. (WRC-07)

5.447A The allocation to the fixed-satellite service (Earth-to-space) is limited to feeder links of non-geostationary-satellite systems in the mobile-satellite service and is subject to coordination under No. 9.11A.

5.447B Additional allocation: the band 5150-5216 MHz is also allocated to the fixed-satellite service (space-to-Earth) on a primary basis. This allocation is limited to feeder links of non-geostationary-satellite systems in the mobile-satellite service and is subject to provisions of No. 9.11A. The power flux-density at the Earth's surface produced by space stations of the fixed-satellite service operating in the space-to-Earth direction in the band 5150-5216 MHz shall in no case exceed –164 dB(W/m^2) in any 4 kHz band for all angles of arrival.

5.447C Administrations responsible for fixed-satellite service networks in the band 5150-5250 MHz operated under Nos. 5.447A and 5.447B shall coordinate on an equal basis in accordance with No. 9.11A with administrations responsible for non-geostationary-satellite networks operated under No. 5.446 and brought into use prior to 17 November 1995. Satellite networks operated under No. 5.446 brought into use after 17 November 1995 shall not claim protection from, and shall not cause harmful interference to, stations of the fixed-satellite service operated under Nos. 5.447A and 5.447B.

5.447D The allocation of the band 5250-5255 MHz to the space research service on a primary basis is limited to active spaceborne sensors. Other uses of the band by the space research service are on a secondary basis.

5.447E Additional allocation: The band 5250-5350 MHz is also allocated to the fixed service on a primary basis in the following countries in Region 3: Australia, Korea (Rep. of), India, Indonesia, Iran (Islamic Republic of), Japan, Malaysia, Papua New Guinea, the Philippines, Dem. People's Rep. of Korea, Sri Lanka, Thailand and Viet Nam. The use of this band by the fixed service is intended for the implementation of fixed wireless access systems and shall comply with Recommendation ITU-R F.1613. In addition, the fixed service shall not claim protection from the radiodetermination, Earth exploration-satellite (active) and space research (active) services, but the provisions of No. 5.43A do not apply to the fixed service with respect to the Earth exploration-satellite (active) and space research (active) services. After implementation of fixed wireless access systems in the fixed service with protection for the existing radiodetermination systems, no more stringent constraints should be imposed on the fixed wireless access systems by future radiodetermination implementations. (WRC-07)

5.447F In the band 5250-5350 MHz, stations in the mobile service shall not claim protection from the radiolocation service, the Earth exploration-satellite service (active) and the space research service (active). These services shall not impose on the mobile service more stringent protection criteria, based on system characteristics and interference criteria, than those stated in Recommendations ITU-R M.1638 and ITU-R RS.1632.

5.448 Additional allocation: in Azerbaijan, Libyan Arab Jamahiriya, Mongolia, Kyrgyzstan, Slovakia, Romania and Turkmenistan, the band 5250-5350 MHz is also allocated to the radionavigation service on a primary basis.

5.448A The Earth exploration-satellite (active) and space research (active) services in the frequency band 5250-5350 MHz shall not claim protection from the radiolocation service. No. 5.43A does not apply.

5.448B The Earth exploration-satellite service (active) operating in the band 5350-5570 MHz and space research service (active) operating in the band 5460-5570 MHz shall not cause harmful interference to the aeronautical radionavigation service in the band 5350-5460 MHz, the radionavigation service in the band 5460-5470 MHz and the maritime radionavigation service in the band 5470-5570 MHz.

5.448C The space research service (active) operating in the band 5350-5460 MHz shall not cause harmful interference to nor claim protection from other services to which this band is allocated.

5.448D In the frequency band 5350-5470 MHz, stations in the radiolocation service shall not cause harmful interference to, nor claim protection from, radar systems in the aeronautical radionavigation service operating in accordance with No. 5.449.

5.449 The use of the band 5350-5470 MHz by the aeronautical radionavigation service is limited to airborne radars and associated airborne beacons.

5.450 Additional allocation: in Austria, Azerbaijan, Iran (Islamic Republic of), Mongolia, Kyrgyzstan, Romania, Turkmenistan and Ukraine, the band 5470-5650 MHz is also allocated to the aeronautical radionavigation service on a primary basis.

5.450A In the band 5470-5725 MHz, stations in the mobile service shall not claim protection from radiodetermination services. Radiodetermination services shall not impose on the mobile service more stringent protection criteria, based on system characteristics and interference criteria, than those stated in Recommendation ITU-R M.1638.

5.450B In the frequency band 5470-5650 MHz, stations in the radiolocation service, except ground-based radars used for meteorological purposes in the band 5600-5650 MHz, shall not cause harmful interference to, nor claim protection from, radar systems in the maritime radionavigation service.

5.451 Additional allocation: in the United Kingdom, the band 5470-5850 MHz is also allocated to the land mobile service on a secondary basis. The power limits specified in Nos. 21.2, 21.3, 21.4 and 21.5 shall apply in the band 5725-5850 MHz.

5.452 Between 5600 MHz and 5650 MHz, ground-based radars used for meteorological purposes are authorized to operate on a basis of equality with stations of the maritime radionavigation service.

5.453 Additional allocation: in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Egypt, the United Arab Emirates, Gabon, Guinea, Equatorial Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, the Libyan Arab Jamahiriya, Japan, Jordan, Kenya, Kuwait, Lebanon, Madagascar, Malaysia, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Sri Lanka, Swaziland, Tanzania, Chad, Thailand, Togo, Viet Nam and Yemen, the band 5650-5850 MHz is also allocated to the fixed and mobile services on a primary basis. In this case, the provisions of Resolution 229 (WRC-03) do not apply.

5.454 Different category of service: in Azerbaijan, the Russian Federation, Georgia, Mongolia, Kyrgyzstan, Tajikistan and Turkmenistan, the allocation of the band 5670-5725 MHz to the space research service is on a primary basis (see No. 5.33). (WRC-07)

5.455 Additional allocation: in Armenia, Azerbaijan, Belarus, Cuba, the Russian Federation, Georgia, Hungary, Kazakhstan, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 5670-5850 MHz is also allocated to the fixed service on a primary basis. (WRC-07)

5.456 Additional allocation: in Cameroon, the band 5755-5850 MHz is also allocated to the fixed service on a primary basis.

5.457A In the bands 5925-6425 MHz and 14-14.5 GHz, earth stations located on board vessels may communicate with space stations of the fixed-satellite service. Such use shall be in accordance with Resolution 902 (WRC-03).

5.457B In the bands 5925-6425 MHz and 14-14.5 GHz, earth stations located on board vessels may operate with the characteristics and under the conditions contained in Resolution 902 (WRC-03) in Algeria, Saudi Arabia, Bahrain, Comoros, Djibouti, Egypt, United Arab Emirates, the Libyan Arab Jamahiriya, Jordan, Kuwait, Morocco, Mauritania, Oman, Qatar, the Syrian Arab Republic, Sudan, Tunisia and Yemen, in the maritime mobile-satellite service on a secondary basis. Such use shall be in accordance with Resolution 902 (WRC-03).

5.457C In Region 2 (except Brazil, Cuba, French overseas departments and communities, Guatemala, Paraguay, Uruguay and Venezuela), the band 5925-6700 MHz may be used for aeronautical mobile telemetry for flight testing by aircraft stations (see No. 1.83). Such use shall be in accordance with Resolution 416 (WRC-07) and shall not cause harmful interference to, nor claim protection from, the fixed-satellite and fixed services. Any such use does not preclude the use of these bands by other mobile service applications or by other services to which these bands are allocated on a co-primary basis and does not establish priority in the Radio Regulations. (WRC-07)

5.458 In the band 6425-7075 MHz, passive microwave sensor measurements are carried out over the oceans. In the band 7075-7250 MHz, passive microwave sensor measurements are carried out. Administrations should bear in mind the needs of the Earth exploration-satellite (passive) and space research (passive) services in their future planning of the bands 6425-7025 MHz and 7075-7250 MHz.

5.458A In making assignments in the band 6700-7075 MHz to space stations of the fixed-satellite service, administrations are urged to take all practicable steps to protect spectral line observations of the radio astronomy service in the band 6650-6675.2 MHz from harmful interference from unwanted emissions.

5.458B The space-to-Earth allocation to the fixed-satellite service in the band 6700-7075 MHz is limited to feeder links for non-geostationary satellite systems of the mobile-satellite service and is subject to coordination under No. 9.11A. The use of the band 6700-7075 MHz (space-to-Earth) by feeder links for non-geostationary satellite systems in the mobile-satellite service is not subject to No. 22.2.

5.458C Administrations making submissions in the band 7025-7075 MHz (Earth-to-space) for geostationary-satellite systems in the fixed-satellite service after 17 November 1995 shall consult on the basis of relevant ITU-R Recommendations with the administrations that have notified and brought into use non-geostationary-satellite systems in this frequency band before 18 November 1995 upon request of the latter administrations. This consultation shall be with a view to facilitating shared operation of both geostationary-satellite systems in the fixed-satellite service and non-geostationary-satellite systems in this band.

5.459 Additional allocation: in the Russian Federation, the frequency bands 7100-7155 MHz and 7190-7235 MHz are also allocated to the space operation service (Earth-to-space) on a primary basis, subject to agreement obtained under No. 9.21.

5.460 The use of the band 7145-7190 MHz by the space research service (Earth-to-space) is restricted to deep space; no emissions to deep space shall be effected in the band 7190-7235 MHz. Geostationary satellites in the space research service operating in the band 7190-7235 MHz shall not claim protection from existing and future stations of the fixed and mobile services and No. 5.43A does not apply.

5.461 Additional allocation: the bands 7250-7375 MHz (space-to-Earth) and 7900-8025 MHz (Earth-to-space) are also allocated to the mobile-satellite service on a primary basis, subject to agreement obtained under No. 9.21.

5.461A The use of the band 7450-7550 MHz by the meteorological-satellite service (space-to-Earth) is limited to geostationary-satellite systems. Non-geostationary meteorological-satellite systems in this band notified before 30 November 1997 may continue to operate on a primary basis until the end of their lifetime.

5.461B The use of the band 7750-7850 MHz by the meteorological-satellite service (space-to-Earth) is limited to non-geostationary satellite systems.

5.462A In Regions 1 and 3 (except for Japan), in the band 8025-8400 MHz, the Earth exploration-satellite service using geostationary satellites shall not produce a power flux-density in excess of the following provisional values for angles of arrival (θ), without the consent of the affected administration:

-174 dB(W/m²) in a 4 kHz band for $0° \leq \theta < 5°$
$-174 + 0.5 (\theta - 5)$ dB(W/m²) in a 4 kHz band for $5° \leq \theta < 25°$
-164 dB(W/m²) in a 4 kHz band for $25° \leq \theta \leq 90°$

These values are subject to study under Resolution 124 (Rev.WRC-2000). (FCC)

5.463 Aircraft stations are not permitted to transmit in the band 8025-8400 MHz.

5.465 In the space research service, the use of the band 8400-8450 MHz is limited to deep space.

5.466 Different category of service: in Israel, Singapore and Sri Lanka, the allocation of the band 8400-8500 MHz to the space research service is on a secondary basis (see No. 5.32).

5.468 Additional allocation: in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burundi, Cameroon, China, Congo (Rep. of the), Costa Rica, Egypt, the United Arab Emirates, Gabon, Guyana, Indonesia, Iran (Islamic Republic of), Iraq, the Libyan Arab Jamahiriya, Jamaica, Jordan, Kenya, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, Qatar, Syrian Arab Republic, the Dem. People's Rep. of Korea, Senegal, Singapore, Somalia, Swaziland, Tanzania, Chad, Togo, Tunisia and Yemen, the band 8500-8750 MHz is also allocated to the fixed and mobile services on a primary basis.

5.469 Additional allocation: in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Hungary, Lithuania, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, the Czech Rep., Romania, Tajikistan, Turkmenistan and Ukraine, the band 8500-8750 MHz is also allocated to the land mobile and radionavigation services on a primary basis.

5.469A In the band 8550-8650 MHz, stations in the Earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, or constrain the use and development of, stations of the radiolocation service.

5.470 The use of the band 8750-8850 MHz by the aeronautical radionavigation service is limited to airborne Doppler navigation aids on a centre frequency of 8800 MHz.

5.471 Additional allocation: in Algeria, Germany, Bahrain, Belgium, China, Egypt, the United Arab Emirates, France, Greece, Indonesia, Iran (Islamic Republic of), the Libyan Arab Jamahiriya, the Netherlands, Qatar and Sudan, the bands 8825-8850 MHz and 9000-9200 MHz are also allocated to the maritime radionavigation service, on a primary basis, for use by shore-based radars only. (WRC-07)

5.472 In the bands 8850-9000 MHz and 9200-9225 MHz, the maritime radionavigation service is limited to shore-based radars.

5.473 Additional allocation: in Armenia, Austria, Azerbaijan, Belarus, Cuba, the Russian Federation, Georgia, Hungary, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Romania, Tajikistan, Turkmenistan and Ukraine, the bands 8850-9000 MHz and 9200-9300 MHz are also allocated to the radionavigation service on a primary basis. (WRC-07)

5.473A In the band 9000-9200 MHz, stations operating in the radiolocation service shall not cause harmful interference to, nor claim protection from, systems identified in No. 5.337 operating in the aeronautical radionavigation service, or radar systems in the maritime radionavigation service operating in this band on a primary basis in the countries listed in No. 5.471. (WRC-07)

5.474 In the band 9200-9500 MHz, search and rescue transponders (SART) may be used, having due regard to the appropriate ITU-R Recommendation (see also Article 31).

5.475 The use of the band 9300-9500 MHz by the aeronautical radionavigation service is limited to airborne weather radars and ground-based radars. In addition, ground-based radar beacons in the aeronautical radionavigation service are permitted in the band 9300-9320 MHz on condition that harmful interference is not caused to the maritime radionavigation service. (WRC-07)

5.475A The use of the band 9300-9500 MHz by the Earth exploration-satellite service (active) and the space research service (active) is limited to systems requiring necessary bandwidth greater than 300 MHz that cannot be fully accommodated within the 9500-9800 MHz band. (WRC-07)

5.475B In the band 9300-9500 MHz, stations operating in the radiolocation service shall not cause harmful interference to, nor claim protection from, radars operating in the radionavigation service in conformity with the Radio Regulations. Ground-based radars used for meteorological purposes have priority over other radiolocation uses. (WRC-07)

5.476A In the band 9300-9800 MHz, stations in the Earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, nor claim protection from, stations of the radionavigation and radiolocation services. (WRC-07)

5.477 Different category of service: in Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, Iran (Islamic Republic of), Iraq, Jamaica, Japan, Jordan, Kuwait, Lebanon, Liberia, Malaysia, Nigeria, Oman, Pakistan, Qatar, Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, Trinidad and Tobago, and Yemen, the allocation of the band 9800-10000 MHz to the fixed service is on a primary basis (see No. 5.33). (WRC-07)

5.478 Additional allocation: in Azerbaijan, Mongolia, Kyrgyzstan, Romania, Turkmenistan and Ukraine, the band 9800-10000 MHz is also allocated to the radionavigation service on a primary basis. (WRC-07)

5.478A The use of the band 9800-9900 MHz by the Earth exploration-satellite service (active) and the space research service (active) is limited to systems requiring necessary bandwidth greater than 500 MHz that cannot be fully accommodated within the 9300-9800 MHz band. (WRC-07)

5.478B In the band 9800-9900 MHz, stations in the Earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, nor claim protection from stations of the fixed service to which this band is allocated on a secondary basis. (WRC-07)

5.479 The band 9975-10025 MHz is also allocated to the meteorological-satellite service on a secondary basis for use by weather radars.

5.480 Additional allocation: in Argentina, Brazil, Chile, Costa Rica, Cuba, El Salvador, Ecuador, Guatemala, Honduras, Mexico, Paraguay, the Netherlands Antilles, Peru and Uruguay, the band 10-10.45 GHz is also allocated to the fixed and mobile services on a primary basis. In Venezuela, the band 10-10.45 GHz is also allocated to the fixed service on a primary basis. (WRC-07)

5.481 Additional allocation: in Germany, Angola, Brazil, China, Costa Rica, Côte d'Ivoire, El Salvador, Ecuador, Spain, Guatemala, Hungary, Japan, Kenya, Morocco, Nigeria, Oman, Uzbekistan, Paraguay, Peru, the Dem. People's Rep. of Korea, Romania, Tanzania, Thailand and Uruguay, the band 10.45-10.5 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-07)

5.482 In the band 10.6-10.68 GHz, the power delivered to the antenna of stations of the fixed and mobile, except aeronautical mobile, services shall not exceed −3 dBW. This limit may be exceeded, subject to agreement obtained under No. 9.21. However, in Algeria, Saudi Arabia, Armenia, Azerbaijan, Bahrain, Bangladesh, Belarus, Egypt, United Arab Emirates, Georgia, India, Indonesia, Iran (Islamic Republic of), Iraq, Jordan, Libyan Arab Jamahiriya, Kazakhstan, Kuwait, Lebanon, Morocco, Mauritania, Moldova, Nigeria, Oman, Uzbekistan, Pakistan, Philippines, Qatar, Syrian Arab Republic, Kyrgyzstan, Singapore, Tajikistan, Tunisia, Turkmenistan and Viet Nam, this restriction on the fixed and mobile, except aeronautical mobile, services is not applicable. (WRC-07) (FCC)

5.482A For sharing of the band 10.6-10.68 GHz between the Earth exploration-satellite (passive) service and the fixed and mobile, except aeronautical mobile, services, Resolution 751 (WRC-07) applies. (WRC-07)

5.483 Additional allocation: in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, China, Colombia, Korea (Rep. of), Costa Rica, Egypt, the United Arab Emirates, Georgia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kazakhstan, Kuwait, Lebanon, Mongolia, Qatar, Kyrgyzstan, the Dem. People's Rep. of Korea, Romania, Tajikistan, Turkmenistan and Yemen, the band 10.68-10.7 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. Such use is limited to equipment in operation by 1 January 1985. (WRC-07)

5.484 In Region 1, the use of the band 10.7-11.7 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service.

5.484A The use of the bands 10.95-11.2 GHz (space-to-Earth), 11.45-11.7 GHz (space-to-Earth), 11.7-12.2 GHz (space-to-Earth) in Region 2, 12.2-12.75 GHz (space-to-Earth) in Region 3, 12.5-12.75 GHz (space-to-Earth) in Region 1, 13.75-14.5 GHz (Earth-to-space), 17.8-18.6 GHz (space-to-Earth), 19.7-20.2 GHz (space-to-Earth), 27.5-28.6 GHz (Earth-to-space), 29.5-30 GHz (Earth-to-space) by a non-geostationary-satellite system in the fixed-satellite service is subject to application of the provisions of No. 9.12 for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the fixed-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. 5.43A does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated.

5.485 In Region 2, in the band 11.7-12.2 GHz, transponders on space stations in the fixed-satellite service may be used additionally for transmissions in the broadcasting-satellite service, provided that such transmissions do not have a maximum e.i.r.p. greater than 53 dBW per television channel and do not cause greater interference or require more protection from interference than the coordinated fixed-satellite service frequency assignments. With respect to the space services, this band shall be used principally for the fixed-satellite service.

5.486 Different category of service: in Mexico and the United States, the allocation of the band 11.7-12.1 GHz to the fixed service is on a secondary basis (see No. 5.32).

5.487 In the band 11.7-12.5 GHz in Regions 1 and 3, the fixed, fixed-satellite, mobile, except aeronautical mobile, and broadcasting services, in accordance with their respective allocations, shall not cause harmful interference to, or claim protection from, broadcasting-satellite stations operating in accordance with the Regions 1 and 3 Plan in Appendix 30.

5.487A Additional allocation: in Region 1, the band 11.7-12.5 GHz, in Region 2, the band 12.2-12.7 GHz and, in Region 3, the band 11.7-12.2 GHz, are also allocated to the fixed-satellite service (space-to-Earth) on a primary basis, limited to non-geostationary systems and subject to application of the provisions of No. 9.12 for coordination with other non-geostationary-satellite systems in the fixed-

satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the broadcasting-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. 5.43A does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated.

5.488 The use of the band 11.7-12.2 GHz by geostationary-satellite networks in the fixed-satellite service in Region 2 is subject to application of the provisions of No. 9.14 for coordination with stations of terrestrial services in Regions 1, 2 and 3. For the use of the band 12.2-12.7 GHz by the broadcasting-satellite service in Region 2, see Appendix 30.

5.489 Additional allocation: in Peru, the band 12.1-12.2 GHz is also allocated to the fixed service on a primary basis.

5.490 In Region 2, in the band 12.2-12.7 GHz, existing and future terrestrial radiocommunication services shall not cause harmful interference to the space services operating in conformity with the broadcasting-satellite Plan for Region 2 contained in Appendix 30.

5.492 Assignments to stations of the broadcasting-satellite service which are in conformity with the appropriate regional Plan or included in the Regions 1 and 3 List in Appendix 30 may also be used for transmissions in the fixed-satellite service (space-to-Earth), provided that such transmissions do not cause more interference, or require more protection from interference, than the broadcasting-satellite service transmissions operating in conformity with the Plan or the List, as appropriate.

5.493 The broadcasting-satellite service in the band 12.5-12.75 GHz in Region 3 is limited to a power flux-density not exceeding -111 dB(W/(m² · 27 MHz)) for all conditions and for all methods of modulation at the edge of the service area.

5.494 Additional allocation: in Algeria, Angola, Saudi Arabia, Bahrain, Cameroon, the Central African Rep., Congo (Rep. of the), Côte d'Ivoire, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Gabon, Ghana, Guinea, Iraq, Israel, the Libyan Arab Jamahiriya, Jordan, Kuwait, Lebanon, Madagascar, Mali, Morocco, Mongolia, Nigeria, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Somalia, Sudan, Chad, Togo and Yemen, the band 12.5-12.75 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

5.495 Additional allocation: in Bosnia and Herzegovina, France, Greece, Liechtenstein, Monaco, Montenegro, Uganda, Romania, Serbia, Switzerland, Tanzania and Tunisia, the band 12.5-12.75 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis. (WRC-07)

5.496 Additional allocation: in Austria, Azerbaijan, Kyrgyzstan and Turkmenistan, the band 12.5-12.75 GHz is also allocated to the fixed service and the mobile, except aeronautical mobile, service on a primary basis. However, stations in these services shall not cause harmful interference to fixed-satellite service earth stations of countries in Region 1 other than those listed in this footnote. Coordination of these earth stations is not required with stations of the fixed and mobile services of the countries listed in this footnote. The power flux-density limit at the Earth's surface given in Table 21-4 of Article 21, for the fixed-satellite service shall apply on the territory of the countries listed in this footnote.

5.497 The use of the band 13.25-13.4 GHz by the aeronautical radionavigation service is limited to Doppler navigation aids.

5.498A The Earth exploration-satellite (active) and space research (active) services operating in the band 13.25-13.4 GHz shall not cause harmful interference to, or constrain the use and development of, the aeronautical radionavigation service.

5.499 Additional allocation: in Bangladesh, India and Pakistan, the band 13.25-14 GHz is also allocated to the fixed service on a primary basis.

5.500 Additional allocation: in Algeria, Angola, Saudi Arabia, Bahrain, Brunei Darussalam, Cameroon, Egypt, the United Arab Emirates, Gabon, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, Lebanon, Madagascar, Malaysia, Mali, Malta, Morocco, Mauritania, Nigeria, Pakistan, Qatar, the Syrian Arab Republic, Singapore, Sudan, Chad and Tunisia, the band 13.4-14 GHz is also allocated to the fixed and mobile services on a primary basis.

5.501 Additional allocation: in Azerbaijan, Hungary, Japan, Mongolia, Kyrgyzstan, Romania and Turkmenistan, the band 13.4-14 GHz is also allocated to the radionavigation service on a primary basis. (WRC-07)

5.501A The allocation of the band 13.4-13.75 GHz to the space research service on a primary basis is limited to active spaceborne sensors. Other uses of the band by the space research service are on a secondary basis.

5.501B In the band 13.4-13.75 GHz, the Earth exploration-satellite (active) and space research (active) services shall not cause harmful interference to, or constrain the use and development of, the radiolocation service.

5.502 In the band 13.75-14 GHz, an earth station of a geostationary fixed-satellite service network shall have a minimum antenna diameter of 1.2 m and an earth station of a non-geostationary fixed-satellite service system shall have a minimum antenna diameter of 4.5 m. In addition, the e.i.r.p., averaged over one second, radiated by a station in the radiolocation or radionavigation services shall not exceed 59 dBW for elevation angles above 2° and 65 dBW at lower angles. Before an administration brings into use an earth station in a geostationary-satellite network in the fixed-satellite service in this band with an antenna diameter smaller than 4.5 m, it shall ensure that the power flux-density produced by this earth station does not exceed:

– –115 dB(W/(m² · 10 MHz)) for more than 1% of the time produced at 36 m above sea level at the low water mark, as officially recognized by the coastal State;
– –115 dB(W/(m² · 10 MHz)) for more than 1% of the time produced 3 m above ground at the border of the territory of an administration deploying or planning to deploy land mobile radars in this band, unless prior agreement has been obtained.

For earth stations within the fixed-satellite service having an antenna diameter greater than or equal to 4.5 m, the e.i.r.p. of any emission should be at least 68 dBW and should not exceed 85 dBW.

5.503 In the band 13.75-14 GHz, geostationary space stations in the space research service for which information for advance publication has been received by the Bureau prior to 31 January 1992 shall operate on an equal basis with stations in the fixed-satellite service; after that date, new geostationary space stations in the space research service will operate on a secondary basis. Until those geostationary space stations in the space research service for which information for advance publication has been received by the Bureau prior to 31 January 1992 cease to operate in this band:

– in the band 13.77-13.78 GHz, the e.i.r.p. density of emissions from any earth station in the fixed-satellite service operating with a space station in geostationary-satellite orbit shall not exceed:

i) 4.7D + 28 dB (W/40 kHz), where D is the fixed-satellite service earth station antenna diameter (m) for antenna diameters equal to or greater than 1.2 m and less than 4.5 m;

ii) 49.2 + 20 log (D/4.5) dB(W/40 kHz), where D is the fixed-satellite service earth station antenna diameter (m) for antenna diameters equal to or greater than 4.5 m and less than 31.9 m;

iii) 66.2 dB(W/40 kHz) for any fixed-satellite service earth station for antenna diameters (m) equal to or greater than 31.9 m;

iv) 56.2 dB(W/4 kHz) for narrow-band (less than 40 kHz of necessary bandwidth) fixed-satellite service earth station emissions from any fixed-satellite service earth station having an antenna diameter of 4.5 m or greater;

– the e.i.r.p. density of emissions from any earth station in the fixed-satellite service operating with a space station in non-geostationary-satellite orbit shall not exceed 51 dBW in the 6 MHz band from 13.772 to 13.778 GHz.

Automatic power control may be used to increase the e.i.r.p. density in these frequency ranges to compensate for rain attenuation, to the extent that the power flux-density at the fixed-satellite service space station does not exceed the value resulting from use by an earth station of an e.i.r.p. meeting the above limits in clear-sky conditions.

5.504 The use of the band 14-14.3 GHz by the radionavigation service shall be such as to provide sufficient protection to space stations of the fixed-satellite service.

5.504A In the band 14-14.5 GHz, aircraft earth stations in the secondary aeronautical mobile-satellite service may also communicate with space stations in the fixed-satellite service. The provisions of Nos. 5.29, 5.30 and 5.31 apply.

5.504B Aircraft earth stations operating in the aeronautical mobile-satellite service in the band 14-14.5 GHz shall comply with the provisions of Annex 1, Part C of Recommendation ITU-R M.1643, with respect to any radio astronomy station performing observations in the 14.47-14.5 GHz band located on the territory of Spain, France, India, Italy, the United Kingdom and South Africa.

5.504C In the band 14-14.25 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Botswana, Côte d'Ivoire, Egypt, Guinea, India, Iran (Islamic Republic of), Kuwait, Lesotho, Nigeria, Oman, the Syrian Arab Republic and Tunisia by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU-R M.1643, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. 5.29.

5.505 Additional allocation: in Algeria, Angola, Saudi Arabia, Bahrain, Botswana, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Egypt, the United Arab Emirates, Gabon, Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Lesotho, Lebanon, Malaysia, Mali, Morocco, Mauritania, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, Swaziland, Tanzania, Chad, Viet Nam and Yemen, the band 14-14.3 GHz is also allocated to the fixed service on a primary basis. (WRC-07)

5.506 The band 14-14.5 GHz may be used, within the fixed-satellite service (Earth-to-space), for feeder links for the broadcasting-satellite service, subject to coordination with other networks in the fixed-satellite service. Such use of feeder links is reserved for countries outside Europe.

5.506A In the band 14-14.5 GHz, ship earth stations with an e.i.r.p. greater than 21 dBW shall operate under the same conditions as earth stations located on board vessels, as provided in Resolution 902 (WRC-03). This footnote shall not apply to ship earth stations for which the complete Appendix 4 information has been received by the Bureau prior to 5 July 2003.

5.506B Earth stations located on board vessels communicating with space stations in the fixed-satellite service may operate in the frequency band 14-14.5 GHz without the need for prior agreement from Cyprus, Greece and Malta, within the minimum distance given in Resolution 902 (WRC-03) from these countries.

5.508 Additional allocation: in Germany, Bosnia and Herzegovina, France, Italy, Libyan Arab Jamahiriya, The Former Yugoslav Rep. of Macedonia and the United Kingdom, the band 14.25-14.3 GHz is also allocated to the fixed service on a primary basis. (WRC-07)

5.508A In the band 14.25-14.3 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Botswana, China, Côte d'Ivoire, Egypt, France, Guinea, India, Iran (Islamic Republic of), Italy, Kuwait, Lesotho, Nigeria, Oman, the Syrian Arab Republic, the United Kingdom and Tunisia by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits

given in Annex 1, Part B of Recommendation ITU-R M.1643, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. 5.29.

5.509A In the band 14.3-14.5 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Botswana, Cameroon, China, Côte d'Ivoire, Egypt, France, Gabon, Guinea, India, Iran (Islamic Republic of), Italy, Kuwait, Lesotho, Morocco, Nigeria, Oman, the Syrian Arab Republic, the United Kingdom, Sri Lanka, Tunisia and Viet Nam by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU-R M.1643, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. 5.29.

5.510 The use of the band 14.5-14.8 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service. This use is reserved for countries outside Europe.

5.511 Additional allocation: in Saudi Arabia, Bahrain, Bosnia and Herzegovina, Cameroon, Egypt, the United Arab Emirates, Guinea, Iran (Islamic Republic of), Iraq, Israel, the Libyan Arab Jamahiriya, Kuwait, Lebanon, Pakistan, Qatar, the Syrian Arab Republic and Somalia, the band 15.35-15.4 GHz is also allocated to the fixed and mobile services on a secondary basis. (WRC-07)

5.511A The band 15.43-15.63 GHz is also allocated to the fixed-satellite service (space-to-Earth) on a primary basis. Use of the band 15.43-15.63 GHz by the fixed-satellite service (space-to-Earth and Earth-to-space) is limited to feeder links of non-geostationary systems in the mobile-satellite service, subject to coordination under No. 9.11A. The use of the frequency band 15.43-15.63 GHz by the fixed-satellite service (space-to-Earth) is limited to feeder links of non-geostationary systems in the mobile-satellite service for which advance publication information has been received by the Bureau prior to 2 June 2000. In the space-to-Earth direction, the minimum earth station elevation angle above and gain towards the local horizontal plane and the minimum coordination distances to protect an earth station from harmful interference shall be in accordance with Recommendation ITU-R S.1341. In order to protect the radio astronomy service in the band 15.35-15.4 GHz, the aggregate power flux-density radiated in the 15.35-15.4 GHz band by all the space stations within any feeder-link of a non-geostationary system in the mobile-satellite service (space-to-Earth) operating in the 15.43-15.63 GHz band shall not exceed the level of -156 dB(W/m²) in a 50 MHz bandwidth, into any radio astronomy observatory site for more than 2% of the time.

5.511C Stations operating in the aeronautical radionavigation service shall limit the effective e.i.r.p. in accordance with Recommendation ITU-R S.1340. The minimum coordination distance required to protect the aeronautical radionavigation stations (No. 4.10 applies) from harmful interference from feeder-link earth stations and the maximum e.i.r.p. transmitted towards the local horizontal plane by a feeder-link earth station shall be in accordance with Recommendation ITU-R S.1340.

5.511D Fixed-satellite service systems for which complete information for advance publication has been received by the Bureau by 21 November 1997 may operate in the bands 15.4-15.43 GHz and 15.63-15.7 GHz in the space-to-Earth direction and 15.63-15.65 GHz in the Earth-to-space direction. In the bands 15.4-15.43 GHz and 15.65-15.7 GHz, emissions from a non-geostationary space station shall not exceed the power flux-density limits at the Earth's surface of -146 dB(W/(m² · MHz)) for any angle of arrival. In the band 15.63-15.65 GHz, where an administration plans emissions from a non-geostationary space station that exceed -146 dB(W/(m² · MHz)) for any angle of arrival, it shall coordinate under No. 9.11A with the affected administrations. Stations in the fixed-satellite service operating in the band 15.63-15.65 GHz in the Earth-to-space direction shall not cause harmful interference to stations in the aeronautical radionavigation service (No. 4.10 applies).

5.512 Additional allocation: in Algeria, Angola, Saudi Arabia, Austria, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, Congo (Rep. of the), Costa Rica, Egypt, El Salvador, the United Arab Emirates, Eritrea, Finland, Guatemala, India, Indonesia, Iran (Islamic Republic of), the Libyan Arab

Jamahiriya, Jordan, Kenya, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Montenegro, Mozambique, Nepal, Nicaragua, Oman, Pakistan, Qatar, Syrian Arab Republic, Serbia, Singapore, Somalia, Sudan, Swaziland, Tanzania, Chad, Togo and Yemen, the band 15.7-17.3 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-07)

5.513 Additional allocation: in Israel, the band 15.7-17.3 GHz is also allocated to the fixed and mobile services on a primary basis. These services shall not claim protection from or cause harmful interference to services operating in accordance with the Table in countries other than those included in No. 5.512.

5.513A Spaceborne active sensors operating in the band 17.2-17.3 GHz shall not cause harmful interference to, or constrain the development of, the radiolocation and other services allocated on a primary basis.

5.514 Additional allocation: in Algeria, Angola, Saudi Arabia, Bahrain, Bangladesh, Cameroon, Costa Rica, El Salvador, the United Arab Emirates, Guatemala, India, Iran (Islamic Republic of), Iraq, Israel, Italy, the Libyan Arab Jamahiriya, Japan, Jordan, Kuwait, Lithuania, Nepal, Nicaragua, Nigeria, Oman, Uzbekistan, Pakistan, Qatar, Kyrgyzstan and Sudan, the band 17.3-17.7 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits given in Nos. 21.3 and 21.5 shall apply. (WRC-07)

5.515 In the band 17.3-17.8 GHz, sharing between the fixed-satellite service (Earth-to-space) and the broadcasting-satellite service shall also be in accordance with the provisions of § 1 of Annex 4 of Appendix 30A.

5.516 The use of the band 17.3-18.1 GHz by geostationary-satellite systems in the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service. The use of the band 17.3-17.8 GHz in Region 2 by systems in the fixed-satellite service (Earth-to-space) is limited to geostationary satellites. For the use of the band 17.3-17.8 GHz in Region 2 by feeder links for the broadcasting-satellite service in the band 12.2-12.7 GHz, see Article 11. The use of the bands 17.3-18.1 GHz (Earth-to-space) in Regions 1 and 3 and 17.8-18.1 GHz (Earth-to-space) in Region 2 by non-geostationary-satellite systems in the fixed-satellite service is subject to application of the provisions of No. 9.12 for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the fixed-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. 5.43A does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated.

5.516A In the band 17.3-17.7 GHz, earth stations of the fixed-satellite service (space-to-Earth) in Region 1 shall not claim protection from the broadcasting-satellite service feeder-link earth stations operating under Appendix 30A, nor put any limitations or restrictions on the locations of the broadcasting-satellite service feeder-link earth stations anywhere within the service area of the feeder link.

5.516B The following bands are identified for use by high-density applications in the fixed-satellite service:

17.3-17.7 GHz (space-to-Earth) in Region 1,
18.3-19.3 GHz (space-to-Earth) in Region 2,
19.7-20.2 GHz (space-to-Earth) in all Regions,
39.5-40 GHz (space-to-Earth) in Region 1,
40-40.5 GHz (space-to-Earth) in all Regions,
40.5-42 GHz (space-to-Earth) in Region 2,

47.5-47.9 GHz (space-to-Earth) in Region 1,
48.2-48.54 GHz (space-to-Earth) in Region 1,
49.44-50.2 GHz (space-to-Earth) in Region 1,
and
27.5-27.82 GHz (Earth-to-space) in Region 1,
28.35-28.45 GHz (Earth-to-space) in Region 2,
28.45-28.94 GHz (Earth-to-space) in all Regions,
28.94-29.1 GHz (Earth-to-space) in Region 2 and 3,
29.25-29.46 GHz (Earth-to-space) in Region 2,
29.46-30 GHz (Earth-to-space) in all Regions,
48.2-50.2 GHz (Earth-to-space) in Region 2.

This identification does not preclude the use of these bands by other fixed-satellite service applications or by other services to which these bands are allocated on a co-primary basis and does not establish priority in these Radio Regulations among users of the bands. Administrations should take this into account when considering regulatory provisions in relation to these bands. See Resolution 143 (Rev.WRC-07). (FCC)

5.517 In Region 2, use of the fixed-satellite (space-to-Earth) service in the band 17.7-17.8 GHz shall not cause harmful interference to nor claim protection from assignments in the broadcasting-satellite service operating in conformity with the Radio Regulations. (WRC-07)

5.519 Additional allocation: the bands 18-18.3 GHz in Region 2 and 18.1-18.4 GHz in Regions 1 and 3 are also allocated to the meteorological-satellite service (space-to-Earth) on a primary basis. Their use is limited to geostationary satellites. (WRC-07)

5.520 The use of the band 18.1-18.4 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links of geostationary-satellite systems in the broadcasting-satellite service.

5.521 Alternative allocation: in Germany, Denmark, the United Arab Emirates and Greece, the band 18.1-18.4 GHz is allocated to the fixed, fixed-satellite (space-to-Earth) and mobile services on a primary basis (see No. 5.33). The provisions of No. 5.519 also apply.

5.522A The emissions of the fixed service and the fixed-satellite service in the band 18.6-18.8 GHz are limited to the values given in Nos. 21.5A and 21.16.2, respectively.

5.522B The use of the band 18.6-18.8 GHz by the fixed-satellite service is limited to geostationary systems and systems with an orbit of apogee greater than 20000 km.

5.522C In the band 18.6-18.8 GHz, in Algeria, Saudi Arabia, Bahrain, Egypt, the United Arab Emirates, the Libyan Arab Jamahiriya, Jordan, Lebanon, Morocco, Oman, Qatar, the Syrian Arab Republic, Tunisia and Yemen, fixed-service systems in operation at the date of entry into force of the Final Acts of WRC-2000 are not subject to the limits of No. 21.5A.

5.523A The use of the bands 18.8-19.3 GHz (space-to-Earth) and 28.6-29.1 GHz (Earth-to-space) by geostationary and non-geostationary fixed-satellite service networks is subject to the application of the provisions of No. 9.11A and No. 22.2 does not apply. Administrations having geostationary-satellite networks under coordination prior to 18 November 1995 shall cooperate to the maximum extent possible to coordinate pursuant to No. 9.11A with non-geostationary-satellite networks for which notification information has been received by the Bureau prior to that date, with a view to reaching results acceptable to all the parties concerned. Non-geostationary-satellite networks shall not cause unacceptable interference to geostationary fixed-satellite service networks for which complete Appendix 4 notification information is considered as having been received by the Bureau prior to 18 November 1995.

5.523B The use of the band 19.3-19.6 GHz (Earth-to-space) by the fixed-satellite service is limited to feeder links for non-geostationary-satellite systems in the mobile-satellite service. Such use is subject to the application of the provisions of No. 9.11A, and No. 22.2 does not apply.

5.523C No. 22.2 shall continue to apply in the bands 19.3-19.6 GHz and 29.1-29.4 GHz, between feeder links of non-geostationary mobile-satellite service networks and those fixed-satellite service networks for which complete Appendix 4 coordination information, or notification information, is considered as having been received by the Bureau prior to 18 November 1995.

5.523D The use of the band 19.3-19.7 GHz (space-to-Earth) by geostationary fixed-satellite service systems and by feeder links for non-geostationary-satellite systems in the mobile-satellite service is subject to the application of the provisions of No. 9.11A, but not subject to the provisions of No. 22.2. The use of this band for other non-geostationary fixed-satellite service systems, or for the cases indicated in Nos. 5.523C and 5.523E, is not subject to the provisions of No. 9.11A and shall continue to be subject to Articles 9 (except No. 9.11A) and 11 procedures, and to the provisions of No. 22.2.

5.523E No. 22.2 shall continue to apply in the bands 19.6-19.7 GHz and 29.4-29.5 GHz, between feeder links of non-geostationary mobile-satellite service networks and those fixed-satellite service networks for which complete Appendix 4 coordination information, or notification information, is considered as having been received by the Bureau by 21 November 1997.

5.524 Additional allocation: in Afghanistan, Algeria, Angola, Saudi Arabia, Bahrain, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Costa Rica, Egypt, the United Arab Emirates, Gabon, Guatemala, Guinea, India, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, Tanzania, Chad, Togo and Tunisia, the band 19.7-21.2 GHz is also allocated to the fixed and mobile services on a primary basis. This additional use shall not impose any limitation on the power flux-density of space stations in the fixed-satellite service in the band 19.7-21.2 GHz and of space stations in the mobile-satellite service in the band 19.7-20.2 GHz where the allocation to the mobile-satellite service is on a primary basis in the latter band. (WRC-07)

5.525 In order to facilitate interregional coordination between networks in the mobile-satellite and fixed-satellite services, carriers in the mobile-satellite service that are most susceptible to interference shall, to the extent practicable, be located in the higher parts of the bands 19.7-20.2 GHz and 29.5-30 GHz.

5.526 In the bands 19.7-20.2 GHz and 29.5-30 GHz in Region 2, and in the bands 20.1-20.2 GHz and 29.9-30 GHz in Regions 1 and 3, networks which are both in the fixed-satellite service and in the mobile-satellite service may include links between earth stations at specified or unspecified points or while in motion, through one or more satellites for point-to-point and point-to-multipoint communications.

5.527 In the bands 19.7-20.2 GHz and 29.5-30 GHz, the provisions of No. 4.10 do not apply with respect to the mobile-satellite service.

5.528 The allocation to the mobile-satellite service is intended for use by networks which use narrow spot-beam antennas and other advanced technology at the space stations. Administrations operating systems in the mobile-satellite service in the band 19.7-20.1 GHz in Region 2 and in the band 20.1-20.2 GHz shall take all practicable steps to ensure the continued availability of these bands for administrations operating fixed and mobile systems in accordance with the provisions of No. 5.524.

5.529 The use of the bands 19.7-20.1 GHz and 29.5-29.9 GHz by the mobile-satellite service in Region 2 is limited to satellite networks which are both in the fixed-satellite service and in the mobile-satellite service as described in No. 5.526.

5.530 In Regions 1 and 3, the use of the band 21.4-22 GHz by the broadcasting-satellite service is subject to the provisions of Resolution 525 (Rev.WRC-07). (WRC-07)

5.531 Additional allocation: in Japan, the band 21.4-22 GHz is also allocated to the broadcasting service on a primary basis.

5.532 The use of the band 22.21-22.5 GHz by the Earth exploration-satellite (passive) and space research (passive) services shall not impose constraints upon the fixed and mobile, except aeronautical mobile, services.

5.533 The inter-satellite service shall not claim protection from harmful interference from airport surface detection equipment stations of the radionavigation service.

5.535 In the band 24.75-25.25 GHz, feeder links to stations of the broadcasting-satellite service shall have priority over other uses in the fixed-satellite service (Earth-to-space). Such other uses shall protect and shall not claim protection from existing and future operating feeder-link networks to such broadcasting satellite stations.

5.535A The use of the band 29.1-29.5 GHz (Earth-to-space) by the fixed-satellite service is limited to geostationary-satellite systems and feeder links to non-geostationary-satellite systems in the mobile-satellite service. Such use is subject to the application of the provisions of No. 9.11A, but not subject to the provisions of No. 22.2, except as indicated in Nos. 5.523C and 5.523E where such use is not subject to the provisions of No. 9.11A and shall continue to be subject to Articles 9 (except No. 9.11A) and 11 procedures, and to the provisions of No. 22.2.

5.536 Use of the 25.25-27.5 GHz band by the inter-satellite service is limited to space research and Earth exploration-satellite applications, and also transmissions of data originating from industrial and medical activities in space.

5.536A Administrations operating earth stations in the Earth exploration-satellite service or the space research service shall not claim protection from stations in the fixed and mobile services operated by other administrations. In addition, earth stations in the Earth exploration-satellite service or in the space research service should be operated taking into account Recommendations ITU-R SA.1278 and ITU-R SA.1625, respectively.

5.536B In Germany, Saudi Arabia, Austria, Belgium, Brazil, Bulgaria, China, Korea (Rep. of), Denmark, Egypt, United Arab Emirates, Spain, Estonia, Finland, France, Hungary, India, Iran (Islamic Republic of), Ireland, Israel, Italy, the Libyan Arab Jamahiriya, Jordan, Kenya, Kuwait, Lebanon, Liechtenstein, Lithuania, Moldova, Norway, Oman, Uganda, Pakistan, the Philippines, Poland, Portugal, the Syrian Arab Republic, Dem. People's Rep. of Korea, Slovakia, the Czech Rep., Romania, the United Kingdom, Singapore, Sweden, Switzerland, Tanzania, Turkey, Viet Nam and Zimbabwe, earth stations operating in the Earth exploration-satellite service in the band 25.5-27 GHz shall not claim protection from, or constrain the use and deployment of, stations of the fixed and mobile services. (WRC-07)

5.536C In Algeria, Saudi Arabia, Bahrain, Botswana, Brazil, Cameroon, Comoros, Cuba, Djibouti, Egypt, United Arab Emirates, Estonia, Finland, Iran (Islamic Republic of), Israel, Jordan, Kenya, Kuwait, Lithuania, Malaysia, Morocco, Nigeria, Oman, Qatar, Syrian Arab Republic, Somalia, Sudan, Tanzania, Tunisia, Uruguay, Zambia and Zimbabwe, earth stations operating in the space research service in the band 25.5-27 GHz shall not claim protection from, or constrain the use and deployment of, stations of the fixed and mobile services.

5.537 Space services using non-geostationary satellites operating in the inter-satellite service in the band 27-27.5 GHz are exempt from the provisions of No. 22.2.

5.537A In Bhutan, Cameroon, Korea (Rep. of), the Russian Federation, India, Indonesia, Iran (Islamic Republic of), Japan, Kazakhstan, Lesotho, Malaysia, Maldives, Mongolia, Myanmar, Uzbekistan, Pakistan, the Philippines, Kyrgyzstan, the Dem. People's Rep. of Korea, Sri Lanka, Thailand and Viet Nam, the allocation to the fixed service in the band 27.9-28.2 GHz may also be used by high altitude platform stations (HAPS) within the territory of these countries. Such use of 300 MHz of the fixed-service allocation by HAPS in the above countries is further limited to operation in the HAPS-to-ground direction and shall not cause harmful interference to, nor claim protection from, other types of fixed-service systems or other co-primary services. Furthermore, the development of these other services shall not be constrained by HAPS. See Resolution 145 (Rev.WRC-07). (WRC-07)

5.538 Additional allocation: the bands 27.500-27.501 GHz and 29.999-30.000 GHz are also allocated to the fixed-satellite service (space-to-Earth) on a primary basis for the beacon transmissions intended for up-link power control. Such space-to-Earth transmissions shall not exceed an equivalent isotropically radiated power (e.i.r.p.) of +10 dBW in the direction of adjacent satellites on the geostationary-satellite orbit. (WRC-07)

5.539 The band 27.5-30 GHz may be used by the fixed-satellite service (Earth-to-space) for the provision of feeder links for the broadcasting-satellite service.

5.540 Additional allocation: the band 27.501-29.999 GHz is also allocated to the fixed-satellite service (space-to-Earth) on a secondary basis for beacon transmissions intended for up-link power control.

5.541 In the band 28.5-30 GHz, the earth exploration-satellite service is limited to the transfer of data between stations and not to the primary collection of information by means of active or passive sensors.

5.541A Feeder links of non-geostationary networks in the mobile-satellite service and geostationary networks in the fixed-satellite service operating in the band 29.1-29.5 GHz (Earth-to-space) shall employ uplink adaptive power control or other methods of fade compensation, such that the earth station transmissions shall be conducted at the power level required to meet the desired link performance while reducing the level of mutual interference between both networks. These methods shall apply to networks for which Appendix 4 coordination information is considered as having been received by the Bureau after 17 May 1996 and until they are changed by a future competent world radiocommunication conference. Administrations submitting Appendix 4 information for coordination before this date are encouraged to utilize these techniques to the extent practicable.

5.542 Additional allocation: in Algeria, Saudi Arabia, Bahrain, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guinea, India, Iran (Islamic Republic of), Iraq, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Pakistan, Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Somalia, Sudan, Sri Lanka and Chad, the band 29.5-31 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits specified in Nos. 21.3 and 21.5 shall apply. (WRC-07)

5.543 The band 29.95-30 GHz may be used for space-to-space links in the Earth exploration-satellite service for telemetry, tracking, and control purposes, on a secondary basis.

5.543A In Bhutan, Cameroon, Korea (Rep. of), the Russian Federation, India, Indonesia, Iran (Islamic Republic of), Japan, Kazakhstan, Lesotho, Malaysia, Maldives, Mongolia, Myanmar, Uzbekistan, Pakistan, the Philippines, Kyrgyzstan, the Dem. People's Rep. of Korea, Sri Lanka, Thailand and Viet Nam, the allocation to the fixed service in the band 31-31.3 GHz may also be used by systems using high altitude platform stations (HAPS) in the ground-to-HAPS direction. The use of the band 31-31.3 GHz by systems using HAPS is limited to the territory of the countries listed above and shall not cause harmful interference to, nor claim protection from, other types of fixed-service systems, systems in the mobile service and systems operated under No. 5.545. Furthermore, the development of these services shall not be constrained by HAPS. Systems using HAPS in the band 31-31.3 GHz shall not cause harmful interference to the radio astronomy service having a primary allocation in the band 31.3-31.8 GHz, taking into account the protection criterion as given in Recommendation ITU-R RA.769. In order to ensure the protection of satellite passive services, the level of unwanted power density into a HAPS ground station antenna in the band 31.3-31.8 GHz shall be limited to −106 dB(W/MHz) under clear-sky conditions, and may be increased up to −100 dB(W/MHz) under rainy conditions to mitigate fading due to rain, provided the effective impact on the passive satellite does not exceed the impact under clear-sky conditions. See Resolution 145 (Rev.WRC-07). (WRC-07)

5.544 In the band 31-31.3 GHz the power flux-density limits specified in Article 21, Table 21-4 shall apply to the space research service.

5.545 Different category of service: in Armenia, Georgia, Mongolia, Kyrgyzstan, Tajikistan and Turkmenistan, the allocation of the band 31-31.3 GHz to the space research service is on a primary basis (see No. 5.33). (WRC-07)

5.546 Different category of service: in Saudi Arabia, Armenia, Azerbaijan, Belarus, Egypt, the United Arab Emirates, Spain, Estonia, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Israel, Jordan, Lebanon, Moldova, Mongolia, Uzbekistan, Poland, the Syrian Arab Republic, Kyrgyzstan, Romania, the United Kingdom, South Africa, Tajikistan, Turkmenistan and Turkey, the allocation of the band 31.5-31.8 GHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. 5.33). (WRC-07)

5.547 The bands 31.8-33.4 GHz, 37-40 GHz, 40.5-43.5 GHz, 51.4-52.6 GHz, 55.78-59 GHz and 64-66 GHz are available for high-density applications in the fixed service (see Resolution 75 (WRC-2000)). Administrations should take this into account when considering regulatory provisions in relation to these bands. Because of the potential deployment of high-density applications in the fixed-satellite service in the bands 39.5-40 GHz and 40.5-42 GHz (see No. 5.516B), administrations should further take into account potential constraints to high-density applications in the fixed service, as appropriate. (WRC-07)

5.547A Administrations should take practical measures to minimize the potential interference between stations in the fixed service and airborne stations in the radionavigation service in the 31.8-33.4 GHz band, taking into account the operational needs of the airborne radar systems.

5.547B Alternative allocation: in the United States, the band 31.8-32 GHz is allocated to the radionavigation and space research (deep space) (space-to-Earth) services on a primary basis.

5.547C Alternative allocation: in the United States, the band 32-32.3 GHz is allocated to the radionavigation and space research (deep space) (space-to-Earth) services on a primary basis.

5.547D Alternative allocation: in the United States, the band 32.3-33 GHz is allocated to the inter-satellite and radionavigation services on a primary basis.

5.547E Alternative allocation: in the United States, the band 33-33.4 GHz is allocated to the radionavigation service on a primary basis.

5.548 In designing systems for the inter-satellite service in the band 32.3-33 GHz, for the radionavigation service in the band 32-33 GHz, and for the space research service (deep space) in the band 31.8-32.3 GHz, administrations shall take all necessary measures to prevent harmful interference between these services, bearing in mind the safety aspects of the radionavigation service (see Recommendation 707).

5.549 Additional allocation: in Saudi Arabia, Bahrain, Bangladesh, Egypt, the United Arab Emirates, Gabon, Indonesia, Iran (Islamic Republic of), Iraq, Israel, the Libyan Arab Jamahiriya, Jordan, Kuwait, Lebanon, Malaysia, Mali, Malta, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Singapore, Somalia, Sudan, Sri Lanka, Togo, Tunisia and Yemen, the band 33.4-36 GHz is also allocated to the fixed and mobile services on a primary basis.

5.549A In the band 35.5-36.0 GHz, the mean power flux-density at the Earth's surface, generated by any spaceborne sensor in the Earth exploration-satellite service (active) or space research service (active), for any angle greater than 0.8° from the beam centre shall not exceed −73.3 dB(W/m²) in this band.

5.550 Different category of service: in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Mongolia, Kyrgyzstan, Tajikistan and Turkmenistan, the allocation of the band 34.7-35.2 GHz to the space research service is on a primary basis (see No. 5.33). (WRC-07)

5.550A For sharing of the band 36-37 GHz between the Earth exploration-satellite (passive) service and the fixed and mobile services, Resolution 752 (WRC-07) shall apply. (WRC-07)

5.551F Different category of service: in Japan, the allocation of the band 41.5-42.5 GHz to the mobile service is on a primary basis (see No. 5.33).

5.551H The equivalent power flux-density (epfd) produced in the band 42.5-43.5 GHz by all space stations in any non-geostationary-satellite system in the fixed-satellite service (space-to-Earth), or in the broadcasting-satellite service operating in the 42-42.5 GHz band, shall not exceed the following values at the site of any radio astronomy station for more than 2% of the time:

–230 dB(W/m²) in 1 GHz and –246 dB(W/m²) in any 500 kHz of the 42.5-43.5 GHz band at the site of any radio astronomy station registered as a single-dish telescope; and

–209 dB(W/m²) in any 500 kHz of the 42.5-43.5 GHz band at the site of any radio astronomy station registered as a very long baseline interferometry station.

These epfd values shall be evaluated using the methodology given in Recommendation ITU-R S.1586-1 and the reference antenna pattern and the maximum gain of an antenna in the radio astronomy service given in Recommendation ITU-R RA.1631 and shall apply over the whole sky and for elevation angles higher than the minimum operating angle θ_{min} of the radiotelescope (for which a default value of 5° should be adopted in the absence of notified information).

These values shall apply at any radio astronomy station that either:

– was in operation prior to 5 July 2003 and has been notified to the Bureau before 4 January 2004; or
– was notified before the date of receipt of the complete Appendix 4 information for coordination or notification, as appropriate, for the space station to which the limits apply.

Other radio astronomy stations notified after these dates may seek an agreement with administrations that have authorized the space stations. In Region 2, Resolution 743 (WRC-03) shall apply. The limits in this footnote may be exceeded at the site of a radio astronomy station of any country whose administration so agreed. (WRC-07)

5.551I The power flux-density in the band 42.5-43.5 GHz produced by any geostationary space station in the fixed-satellite service (space-to-Earth), or the broadcasting-satellite service operating in the 42-42.5 GHz band, shall not exceed the following values at the site of any radio astronomy station:

–137 dB(W/m²) in 1 GHz and –153 dB(W/m²) in any 500 kHz of the 42.5-43.5 GHz band at the site of any radio astronomy station registered as a single-dish telescope; and

–116 dB(W/m²) in any 500 kHz of the 42.5-43.5 GHz band at the site of any radio astronomy station registered as a very long baseline interferometry station.

These values shall apply at the site of any radio astronomy station that either:

– was in operation prior to 5 July 2003 and has been notified to the Bureau before 4 January 2004; or
– was notified before the date of receipt of the complete Appendix 4 information for coordination or notification, as appropriate, for the space station to which the limits apply.

Other radio astronomy stations notified after these dates may seek an agreement with administrations that have authorized the space stations. In Region 2, Resolution 743 (WRC-03) shall apply. The limits in this footnote may be exceeded at the site of a radio astronomy station of any country whose administration so agreed.

5.552 The allocation of the spectrum for the fixed-satellite service in the bands 42.5-43.5 GHz and 47.2-50.2 GHz for Earth-to-space transmission is greater than that in the band 37.5-39.5 GHz for space-to-Earth transmission in order to accommodate feeder links to broadcasting satellites. Administrations are urged to take all practicable steps to reserve the band 47.2-49.2 GHz for feeder links for the broadcasting-satellite service operating in the band 40.5-42.5 GHz.

5.552A The allocation to the fixed service in the bands 47.2-47.5 GHz and 47.9-48.2 GHz is designated for use by high altitude platform stations. The use of the bands 47.2-47.5 GHz and 47.9-48.2 GHz is subject to the provisions of Resolution 122 (Rev.WRC-07). (WRC-07)

5.553 In the bands 43.5-47 GHz and 66-71 GHz, stations in the land mobile service may be operated subject to not causing harmful interference to the space radiocommunication services to which these bands are allocated (see No. 5.43).

5.554 In the bands 43.5-47 GHz, 66-71 GHz, 95-100 GHz, 123-130 GHz, 191.8-200 GHz and 252-265 GHz, satellite links connecting land stations at specified fixed points are also authorized when used in conjunction with the mobile-satellite service or the radionavigation-satellite service.

5.554A The use of the bands 47.5-47.9 GHz, 48.2-48.54 GHz and 49.44-50.2 GHz by the fixed-satellite service (space-to-Earth) is limited to geostationary satellites.

5.555 Additional allocation: the band 48.94-49.04 GHz is also allocated to the radio astronomy service on a primary basis.

5.555B The power flux-density in the band 48.94-49.04 GHz produced by any geostationary space station in the fixed-satellite service (space-to-Earth) operating in the bands 48.2-48.54 GHz and 49.44-50.2 GHz shall not exceed –151.8 dB(W/m²) in any 500 kHz band at the site of any radio astronomy station.

5.556 In the bands 51.4-54.25 GHz, 58.2-59 GHz and 64-65 GHz, radio astronomy observations may be carried out under national arrangements.

5.556A Use of the bands 54.25-56.9 GHz, 57-58.2 GHz and 59-59.3 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density at all altitudes from 0 km to 1000 km above the Earth's surface produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, shall not exceed –147 dB(W/(m² · 100 MHz)) for all angles of arrival.

5.556B Additional allocation: in Japan, the band 54.25-55.78 GHz is also allocated to the mobile service on a primary basis for low-density use.

5.557 Additional allocation: in Japan, the band 55.78-58.2 GHz is also allocated to the radiolocation service on a primary basis.

5.557A In the band 55.78-56.26 GHz, in order to protect stations in the Earth exploration-satellite service (passive), the maximum power density delivered by a transmitter to the antenna of a fixed service station is limited to –26 dB(W/MHz).

5.558 In the bands 55.78-58.2 GHz, 59-64 GHz, 66-71 GHz, 122.25-123 GHz, 130-134 GHz, 167-174.8 GHz and 191.8-200 GHz, stations in the aeronautical mobile service may be operated subject to not causing harmful interference to the inter-satellite service (see No. 5.43).

5.558A Use of the band 56.9-57 GHz by inter-satellite systems is limited to links between satellites in geostationary-satellite orbit and to transmissions from non-geostationary satellites in high-Earth orbit to those in low-Earth orbit. For links between satellites in the geostationary-satellite orbit, the single entry power flux-density at all altitudes from 0 km to 1000 km above the Earth's surface, for all conditions and for all methods of modulation, shall not exceed –147 dB(W/(m² · 100 MHz)) for all angles of arrival.

5.559 In the band 59-64 GHz, airborne radars in the radiolocation service may be operated subject to not causing harmful interference to the inter-satellite service (see No. 5.43).

5.560 In the band 78-79 GHz radars located on space stations may be operated on a primary basis in the Earth exploration-satellite service and in the space research service.

5.561 In the band 74-76 GHz, stations in the fixed, mobile and broadcasting services shall not cause harmful interference to stations of the fixed-satellite service or stations of the broadcasting-satellite service operating in accordance with the decisions of the appropriate frequency assignment planning conference for the broadcasting-satellite service.

5.561A The 81-81.5 GHz band is also allocated to the amateur and amateur-satellite services on a secondary basis.

5.561B In Japan, use of the band 84-86 GHz, by the fixed-satellite service (Earth-to-space) is limited to feeder links in the broadcasting-satellite service using the geostationary-satellite orbit.

5.562 The use of the band 94-94.1 GHz by the Earth exploration-satellite (active) and space research (active) services is limited to spaceborne cloud radars.

5.562A In the bands 94-94.1 GHz and 130-134 GHz, transmissions from space stations of the Earth exploration-satellite service (active) that are directed into the main beam of a radio astronomy antenna have the potential to damage some radio astronomy receivers. Space agencies operating the transmitters and the radio astronomy stations concerned should mutually plan their operations so as to avoid such occurrences to the maximum extent possible.

5.562B In the bands 105-109.5 GHz, 111.8-114.25 GHz, 155.5-158.5 GHz and 217-226 GHz, the use of this allocation is limited to space-based radio astronomy only.

5.562C Use of the band 116-122.25 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, at all altitudes from 0 km to 1000 km above the Earth's surface and in the vicinity of all geostationary orbital positions occupied by passive sensors, shall not exceed –148 dB(W/(m² · MHz)) for all angles of arrival.

5.562D Additional allocation: In Korea (Rep. of), the bands 128-130 GHz, 171-171.6 GHz, 172.2-172.8 GHz and 173.3-174 GHz are also allocated to the radio astronomy service on a primary basis until 2015.

5.562E The allocation to the Earth exploration-satellite service (active) is limited to the band 133.5-134 GHz.

5.562F In the band 155.5-158.5 GHz, the allocation to the Earth exploration-satellite (passive) and space research (passive) services shall terminate on 1 January 2018.

5.562G The date of entry into force of the allocation to the fixed and mobile services in the band 155.5-158.5 GHz shall be 1 January 2018.

5.562H Use of the bands 174.8-182 GHz and 185-190 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, at all altitudes from 0 to 1000 km above the Earth's surface and in the vicinity of all geostationary orbital positions occupied by passive sensors, shall not exceed –144 dB(W/(m² · MHz)) for all angles of arrival.

5.563A In the bands 200-209 GHz, 235-238 GHz, 250-252 GHz and 265-275 GHz, ground-based passive atmospheric sensing is carried out to monitor atmospheric constituents.

5.563B The band 237.9-238 GHz is also allocated to the Earth exploration-satellite service (active) and the space research service (active) for spaceborne cloud radars only.

5.565 The frequency band 275-1000 GHz may be used by administrations for experimentation with, and development of, various active and passive services. In this band a need has been identified for the following spectral line measurements for passive services:

- radio astronomy service: 275-323 GHz, 327-371 GHz, 388-424 GHz, 426-442 GHz, 453-510 GHz, 623-711 GHz, 795-909 GHz and 926-945 GHz;
- Earth exploration-satellite service (passive) and space research service (passive): 275-277 GHz, 294-306 GHz, 316-334 GHz, 342-349 GHz, 363-365 GHz, 371-389 GHz, 416-434 GHz, 442-444 GHz, 496-506 GHz, 546-568 GHz, 624-629 GHz, 634-654 GHz, 659-661 GHz, 684-692 GHz, 730-732 GHz, 851-853 GHz and 951-956 GHz.

Future research in this largely unexplored spectral region may yield additional spectral lines and continuum bands of interest to the passive services. Administrations are urged to take all practicable steps to protect these passive services from harmful interference until the date when the allocation Table is established in the above-mentioned frequency band.

UNITED STATES (US) FOOTNOTES

* * * * *

US2 In the band 9-490 kHz, electric utilities operate Power Line Carrier (PLC) systems on power transmission lines for communications important to the reliability and security of electric service to the public. These PLC systems operate under the provisions of 47 CFR part 15, or Chapter 8 of the NTIA Manual, on an unprotected and non-interference basis with respect to authorized radio users. Notification of intent to place new or revised radio frequency assignments or PLC frequency uses in the band 9-490 kHz is to be made in accordance with the Rules and Regulations of the FCC and NTIA, and users are urged to minimize potential interference to the extent practicable. This footnote does not provide any allocation status to PLC radio frequency uses.

* * * * *

US22 The following provisions shall apply to non-Federal use of 68 carrier frequencies in the range 2-8 MHz, which are not coordinated with NTIA:

(a) The frequencies authorized pursuant to 47 CFR 90.264 (Disaster Communications) and 47 CFR 90.266 (Long Distance Communications) are listed in columns 1-2 and columns 3-5, respectively. All stations are restricted to emission designator 2K80J3E, upper sideband transmissions, a maximum transmitter output power of 1 kW PEP, and to the class of station(s) listed in the column heading (i.e., fixed (FX) for all frequencies; base and mobile (FB and ML) for the frequencies in column 1 and 3; itinerant FX for the frequencies in columns 4-5).

(b) Use, Geographic, and Time Restrictions. Letter(s) to the right of a frequency indicate that the frequency is available only for the following purpose(s):

–A or I: Alternate channel or Interstate coordination.

–C, E, M, or W: For stations located in the Conterminous U.S., East of 108° West Longitude (WL), West of the Mississippi River, or West of 90° WL.

–D or N: From two hours after local sunrise until two hours before local sunset (i.e., Day only operations) or from two hours prior to local sunset until two hours after local sunrise (i.e., Night only operations).

Preferred Carrier Frequencies (kHz)				
Disaster Communications		Long Distance Communications		
FX, FB, ML	FX	FX, FB, ML	FX (including itinerant)	
2326 … I	5135 … A	2289	5046.6 … E	7480.1
2411	5140 … A, I	2292	5052.6 … E	7483.1
2414	5192 … I	2395	5055.6 … E	7486.1 … E
2419	5195 … I	2398	5061.6 … W	7549.1 … D
2422	7477 … A	3170	5067.6	7552.1
2439	7480 … A	4538.6 … N	5074.6 … E	7555.1 … W
2463	7802 … D	4548.6 … N	5099.1	7558.1 … W
2466	7805 … I	4575	5102.1	7559.1 … W
2471	7932	4610.5	5313.6	7562.1 … W
2474	7935 … C, D	4613.5	6800.1 … N	7697.1
2487		4634.5	6803.1	
2511		4637.5	6806.1 … W	
2535		4647	6855.1 … N, M	
2569			6858.1 … N	
2587			6861.1 … W	
2801			6885.1 … N	
2804 … A			6888.1 … N	
2812				

NOTE: To determine the assigned frequency, add 1.4 kHz to the carrier frequency. Other emission designators may be authorized within the 2.8 kHz maximum necessary bandwidth pursuant to 47 CFR 90.264 and 90.266.

* * * * *

US37 In bands 1390-1400 and 1427-1432 MHz, Federal operations (except for devices authorized by the FCC for the Wireless Medical Telemetry Service) are on a non-interference basis to non-Federal operations and shall not constrain implementation of non-Federal operations.

* * * * *

US73 The frequencies 150.775, 150.79, 152.0075, and 163.25 MHz, and the bands 462.94-463.19675 and 467.94-468.19675 MHz shall be authorized for the purpose of delivering or rendering medical services to individuals (medical radiocommunication systems), and shall be authorized on a primary basis for Federal and non-Federal use. The frequency 152.0075 MHz may also be used for the purpose of conducting public safety radio communications that inclu1de, but are not limited to, the delivering or rendering of medical services to individuals.

(a) The use of the frequencies 150.775 and 150.79 MHz is restricted to mobile stations operating with a maximum e.r.p. of 100 watts. Airborne operations are prohibited.

(b) The use of the frequencies 152.0075 and 163.25 MHz is restricted to base stations that are authorized only for one-way paging communications to mobile receivers. Transmissions for the purpose of activating or controlling remote objects on these frequencies shall not be authorized.

(c) Non-Federal licensees in the Public Safety Radio Pool holding a valid authorization on May 27, 2005, to operate on the frequencies 150.7825 and 150.7975 MHz may, upon proper renewal application, continue to be authorized for such operation; provided that harmful interference is not caused to present or future Federal stations in the band 150.05-150.8 MHz and, should harmful interference result, that the interfering non-Federal operation shall immediately terminate.

US74 In the bands 25.55-25.67, 73.0-74.6, 406.1-410.0, 608-614, 1400-1427 (see US368), 1660.5-1670.0, 2690-2700, and 4990-5000 MHz, and in the bands 10.68-10.7, 15.35-15.4, 23.6-24.0, 31.3-31.5, 86-92, 100-102, 109.5-111.8, 114.25-116, 148.5-151.5, 164-167, 200-209, and 250-252 GHz, the radio astronomy service shall be protected from unwanted emissions only to the extent that such radiation exceeds the level which would be present if the offending station were operating in compliance with the technical standards or criteria applicable to the service in which it operates. Radio astronomy observations in these bands are performed at the locations listed in US385.

* * * * *

US117 In the band 406.1-410 MHz, the following provisions shall apply:

(a) Stations in the fixed and mobile services are limited to a transmitter output power of 125 watts, and new authorizations for stations, other than mobile stations, are subject to prior coordination by the applicant in the following areas:

(1) Within Puerto Rico and the U.S. Virgin Islands, contact Spectrum Manager, Arecibo Observatory, HC3 Box 53995, Arecibo, PR 00612. Phone: 787-878-2612, Fax: 787-878-1861, E-mail: prcz@naic.edu.

(2) Within 350 km of the Very Large Array (34° 04' 44" N, 107° 37' 06" W), contact Spectrum Manager, National Radio Astronomy Observatory, P.O. Box O, 1003 Lopezville Road, Socorro, NM 87801. Phone: 505-835-7000, Fax: 505-835-7027, E-mail: nrao-rfi@nrao.edu.

(3) Within 10 km of the Table Mountain Observatory (40° 07' 50" N, 105° 14' 40" W) and for operations only within the sub-band 407-409 MHz, contact Radio Frequency Manager, Department of Commerce, 325 Broadway, Boulder, CO 80305. Phone: 303-497-4619, Fax: 303-497-6982, E-mail: frequencymanager@its.bldrdoc.gov.

(b) Non-Federal use is limited to the radio astronomy service and as provided by US13.

US136 The following provisions shall apply in eight HF bands that are allocated to the broadcasting service (HFBC) on a primary basis in all Regions.

(a) In Alaska, the assigned frequency band 7368.48-7371.32 kHz is allocated exclusively to the fixed service (FS) on a primary basis for non-Federal use in accordance with 47 CFR 80.387.

(b) On the condition that harmful interference is not caused to the broadcasting service (NIB operations), Federal and non-Federal stations that communicate wholly within the United States and its insular areas may operate as specified herein. All such stations must take account of the seasonal use of frequencies by the broadcasting service published in accordance with Article 12 of the ITU Radio Regulations and are limited to the minimum power needed for reliable communications.

(1) Federal stations. Frequencies in the 13 HF bands/sub-bands listed in the table below (HF NIB Bands) may be authorized to Federal stations in the FS. In the bands 5.9-5.95, 7.3-7.4, 13.57-13.6, and 13.80-13.87 MHz (6, 7, 13.6, and 13.8 MHz bands), frequencies may also be authorized to Federal stations in the mobile except aeronautical mobile route (R) service (MS except AM(R)S). Federal use of the bands 9.775-9.9, 11.65-11.7, and 11.975-12.05 MHz is restricted to stations in the FS that were authorized as of June 12, 2003, and each grandfathered station is restricted to a total radiated power of 24 dBW. In all other HF NIB Bands (*), new Federal stations may be authorized.

(2) Non-Federal stations. Non-Federal use of the HF NIB Bands is restricted to stations in the FS, land mobile service (LMS), and maritime mobile service (MMS) that were licensed prior to March 25, 2007, except that, in the sub-band 7.35-7.4 MHz, use is restricted to stations that were licensed prior to March 29, 2009.

NIB OPERATIONS IN EIGHT HFBC BANDS (MHZ)

HF NIB Band	Federal (*new stations permitted)	Non-Federal	HFBC Band
5.90-5.95	*FS and MS except AM(R)S	MMS …………….	….5.90-6.20
7.30-7.40	*FS and MS except AM(R)S	FS, LMS and MMS	….7.30-7.40
9.40-9.50	*9 MHz: FS ……......................................	FS and LMS	….9.40-9.90
9.775-9.90	FS (Grandfathered, restricted to 24 dBW)		
11.60-11.65	*11 MHz: FS ….....................................	FS	11.60-12.10
11.65-11.70	FS (Grandfathered, restricted to 24 dBW)		
11.975-12.05	FS (Grandfathered, restricted to 24 dBW)		
12.05-12.10	*12 MHz: FS ……………………...……...	FS	
13.57-13.60	*FS and MS except AM(R)S …...............	MMS …........…….	13.57-13.87
13.80-13.87	*FS and MS except AM(R)S	MMS	
15.60-15.80	*15 MHz: FS ……………………...…...…	FS …..…..............	15.10-15.80
17.48-17.55	*17 MHz: FS …………...………………...	……......................	17.48-17.90
18.90-19.02	*19 MHz: FS ……...…………….……...…	MMS …................	18.90-19.02

NOTE: Non-Federal stations may continue to operate in nine HF NIB Bands as follows: (i) In the 6, 7, 13.6, 13.8, and 19 MHz bands, stations in the MMS; (ii) In the 7 and 9 MHz bands, stations in the FS and LMS; and (iii) In the 11, 12, and 15 MHz band, stations in the FS.

US142 In the bands 7.2-7.3 and 7.4-7.45 MHz, the following provisions shall apply:

(a) In the U.S. Pacific insular areas located in Region 3 (see 47 CFR 2.105(a), note 3), the bands 7.2-7.3 and 7.4-7.45 MHz are alternatively allocated to the broadcasting service on a primary basis. Use of this allocation is restricted to international broadcast stations that transmit to geographical zones and areas of reception in Region 1 or Region 3.

(b) The use of the band 7.2-7.3 MHz in Region 2 by the amateur service shall not impose constraints on the broadcasting service intended for use within Region 1 and Region 3.

* * * * *

US226 In the maritime mobile VHF service the frequency 156.525 MHz is to be used exclusively for digital selective calling for distress, safety and calling. The conditions for the use of this frequency are prescribed in Articles 31 and 52, and Appendix 18.

In the band 156.2475-156.7625 MHz, each administration shall give priority to the maritime mobile service on only such frequencies as are assigned to stations of the maritime mobile service by the administration (see Articles 31 and 52). Any use of frequencies in this band by stations of other services to which they are allocated should be avoided in areas where such use might cause harmful interference to the maritime mobile VHF radiocommunication service.

US228 The use of the bands 161.9625-161.9875 MHz (AIS 1 with center frequency 161.975 MHz) and 162.0125-162.0375 MHz (AIS 2 with center frequency 162.025 MHz) by the maritime mobile service is restricted to Automatic Identification Systems (AIS), except that non-Federal stations in the band 161.9625-161.9875 MHz may continue to operate on a primary basis according to the following schedule: (a) In VHF Public Coast Service Areas (VPCSAs) 1-9, site-based stations licensed prior to November 13, 2006 may continue to operate until expiration of the license term for licenses in active status as of November 13, 2006; (b) In VPCSAs 10-42, site-based stations licensed prior to March 2, 2009 may continue to operate until March 4, 2024; and (c) In VPCSAs 10-42, geographical stations licensed prior to March 2, 2009 may continue to operate until March 2, 2011. See 47 CFR 80.371(c)(1)(ii) for the definitions of VPCSAs and geographic license.

* * * * *

US241 The following provision shall apply to Federal operations in the band 216-220.035 MHz:

(a) Use of the fixed and land mobile services in the band 216-220 MHz and of the aeronautical mobile service in the sub-band 217-220 MHz is restricted to telemetry and associated telecommand operations. New stations in the fixed and land mobile services shall not be authorized in the sub-band 216-217 MHz.

(b) The sub-band 216.965-216.995 MHz is also allocated to the Federal radiolocation service on a primary basis and the use of this allocation is restricted to the Air Force Space Surveillance System (AFSSS) radar system. AFSSS stations transmit on the frequency 216.98 MHz and other operations may be affected within: 1) 250 km of Lake Kickapoo (Archer City), TX (33° 2' 48" N, 98° 45' 46" W); and 2) 150 km of Gila River (Phoenix), AZ (33° 6' 32" N, 112° 1' 45" W) and Jordan Lake (Wetumpka), AL (32° 39' 33" N, 86° 15' 52" W). AFSSS reception shall be protected from harmful interference within 50 km of: 1) Elephant Butte, NM (33° 26' 35" N, 106° 59' 50" W); 2) Fort Stewart, GA (31° 58' 36" N, 81° 30' 34" W); 3) Hawkinsville, GA (32° 17' 20" N, 83° 32' 10" W); 4) Red River, AR (33° 19' 48" N, 93° 33' 1" W); 5) San Diego, CA (32° 34' 42" N, 116° 58' 11" W); and 6) Silver Lake, MS (33° 8' 42" N, 91° 1' 16" W).

(c) The sub-band 219.965-220.035 MHz is also allocated to the Federal radiolocation service on a secondary basis and the use of this allocation is restricted to air-search radars onboard Coast Guard vessels.

US242 Use of the fixed and land mobile services in the band 220-222 MHz shall be in accordance with the following plan:

(a) Frequencies are assigned in pairs, with base station transmit frequencies taken from the sub-band 220-221 MHz and with corresponding mobile and control station transmit frequencies being 1 MHz higher and taken from the sub-band 221-222 MHz.

(b) In the non-Federal exclusive sub-bands, temporary fixed geophysical telemetry operations are also permitted on a secondary basis.

(c) The use of Channels 161-170 is restricted to public safety/mutual aid communications.

(d) The use of Channels 181-185 is restricted to emergency medical communications.

220 MHz Plan

Use	Base Transmit	Mobile Transmit	Channel Nos.
Non-Federal exclusive	220.00-220.55	221.00-221.55	001-110
Federal exclusive…...	220.55-220.60	221.55-221.60	111-120
Non-Federal exclusive	220.60-220.80	221.60-221.80	121-160
Shared………………	220.80-220.85	221.80-221.85	161-170
Non-Federal exclusive	220.85-220.90	221.85-221.90	171-180
Shared………………	220.90-220.925	221.90-221.925	181-185
Non-Federal exclusive	220.925-221	221.925-222	186-200

* * * * *

US269 In the band 420-450 MHz, the following provisions shall apply to the non-Federal radiolocation service:

(a) Pulse-ranging radiolocation systems may be authorized for use along the shoreline of the conterminous United States and Alaska.

(b) In the sub-band 420-435 MHz, spread spectrum radiolocation systems may be authorized within the conterminous United States and Alaska.

(c) All stations operating in accordance with this provision shall be secondary to stations operating in accordance with the Table of Frequency Allocations.

(d) Authorizations shall be granted on a case-by-case basis; however, operations proposed to be located within the areas listed in paragraph (a) of US270 should not expect to be accommodated.

US270 In the band 420-450 MHz, the following provisions shall apply to the amateur service:

(a) The peak envelope power of an amateur station shall not exceed 50 watts in the following areas, unless expressly authorized by the FCC after mutual agreement, on a case-by-case basis, between the District Director of the applicable field office and the military area frequency coordinator at the applicable military base. For areas (5) through (7), the appropriate military coordinator is located at Peterson AFB, CO.

(1) Arizona, Florida and New Mexico.

(2) Within those portions of California and Nevada that are south of latitude 37° 10' N.

(3) Within that portion of Texas that is west of longitude 104° W.

(4) Within 322 km of Eglin AFB, FL (30° 30' N, 86° 30' W); Patrick AFB, FL (28° 21' N, 80° 43' W); and the Pacific Missile Test Center, Point Mugu, CA (34° 09' N, 119° 11' W).

(5) Within 240 km of Beale AFB, CA (39° 08' N, 121° 26' W).

(6) Within 200 km of Goodfellow AFB, TX (31° 25' N, 100° 24' W) and Warner Robins AFB, GA (32° 38' N, 83° 35' W).

(7) Within 160 km of Clear AFS, AK (64° 17' N, 149° 10' W); Concrete, ND (48° 43' N, 97° 54' W); and Otis AFB, MA (41° 45' N, 70° 32' W).

(b) In the sub-band 420-430 MHz, the amateur service is not allocated north of Line A (def. § 2.1).

* * * * *

US298 The assigned frequencies 27.555, 27.615, 27.635, 27.655, 27.765, and 27.860 MHz are available for use by forest product licensees on a secondary basis to Federal operations including experimental stations. Non-Federal operations on these frequencies will not exceed 150 watts output power and are limited to the states of Washington, Oregon, Maine, North Carolina, South Carolina, Tennessee, Georgia, Florida, Alabama, Mississippi, Louisiana, and Texas (eastern portion).

* * * * *

US378 In the band 1710-1755 MHz, the following provisions apply:

(a) Federal fixed and tactical radio relay stations may operate indefinitely on a primary basis within 80 km of Cherry Point, NC (34° 58' N, 76° 56' W) and Yuma, AZ (32° 32' N, 113° 58' W).

(b) Federal fixed and tactical radio relay stations shall operate on a secondary basis to primary non-Federal operations at the 14 sites listed below:

80 km radius of operation centered on:		
State	Location	Coordinates
CA	China Lake	35° 41' N 117° 41' W
CA	Pacific Missile Test Range/Point Mugu	34° 07' N 119° 30' W
FL	Eglin AFB	30° 29' N 086° 31' W
MD	Patuxent River	38° 17' N 076° 25' W
NM	White Sands Missile Range	33° 00' N 106° 30' W
NV	Nellis AFB	36° 14' N 115° 02' W
UT	Hill AFB	41° 07' N 111° 58' W
50 km radius of operation centered on:		
AL	Fort Rucker	31° 13' N 085° 49' W
CA	Fort Irwin	35° 16' N 116° 41' W
GA	Fort Benning	32° 22' N 084° 56' W
GA	Fort Stewart	31° 52' N 081° 37' W
KY	Fort Campbell	36° 41' N 087° 28' W
NC	Fort Bragg	35° 09' N 079° 01' W
WA	Fort Lewis	47° 05' N 122° 36' W

(c) In the sub-band 1710-1720 MHz, precision guided munitions shall operate on a primary basis until inventory is exhausted or until December 31, 2008, whichever is earlier.

(d) All other Federal stations in the fixed and mobile services shall operate on a primary basis until reaccommodated in accordance with the Commercial Spectrum Enhancement Act.

US385 Radio astronomy observations may be made in the bands 1350-1400 MHz, 1718.8-1722.2 MHz, and 4950-4990 MHz on an unprotected basis, and in the band 2655-2690 MHz on a secondary basis, at the following radio astronomy observatories:

Allen Telescope Array, Hat Creek, CA	Rectangle between latitudes 40° 00' N and 42° 00' N and between longitudes 120° 15' W and 122° 15' W.	
NASA Goldstone Deep Space Communications Complex, Goldstone, CA	80 kilometers (50 mile) radius centered on 35° 20' N, 116° 53' W.	
National Astronomy and Ionosphere Center, Arecibo, PR	Rectangle between latitudes 17° 30' N and 19° 00' N and between longitudes 65° 10' W and 68° 00' W.	
National Radio Astronomy Observatory, Socorro, NM	Rectangle between latitudes 32° 30' N and 35° 30' N and between longitudes 106° 00' W and 109° 00' W.	
National Radio Astronomy Observatory, Green Bank, WV	Rectangle between latitudes 37° 30' N and 39° 15' N and between longitudes 78° 30' W and 80° 30' W.	
National Radio Astronomy Observatory, Very Long Baseline Array Stations	80 kilometer radius centered on:	
	North latitude	West longitude
Brewster, WA	48° 08'	119° 41'
Fort Davis, TX	30° 38'	103° 57'
Hancock, NH	42° 56'	71° 59'
Kitt Peak, AZ	31° 57'	111° 37'
Los Alamos, NM	35° 47'	106° 15'
Mauna Kea, HI	19° 48'	155° 27'
North Liberty, IA	41° 46'	91° 34'
Owens Valley, CA	37° 14'	118° 17'
Pie Town, NM	34° 18'	108° 07'
Saint Croix, VI	17° 45'	64° 35'

Owens Valley Radio Observatory, Big Pine, CA	Two contiguous rectangles, one between latitudes 36° 00' N and 37° 00' N and between longitudes 117° 40' W and 118° 30' W and the second between latitudes 37° 00' N and 38° 00' N and between longitudes 118° 00' W and 118° 50' W.

(a) In the bands 1350-1400 MHz and 4950-4990 MHz, every practicable effort will be made to avoid the assignment of frequencies to stations in the fixed and mobile services that could interfere with radio astronomy observations within the geographic areas given above. In addition, every practicable effort will be made to avoid assignment of frequencies in these bands to stations in the aeronautical mobile service which operate outside of those geographic areas, but which may cause harmful interference to the listed observatories. Should such assignments result in harmful interference to these observatories, the situation will be remedied to the extent practicable.

(b) In the band 2655-2690 MHz, for radio astronomy observations performed at the locations listed above, licensees are urged to coordinate their systems through the Electromagnetic Spectrum Management Unit, Division of Astronomical Sciences, National Science Foundation, Room 1030, 4201 Wilson Blvd., Arlington, VA 22230.

* * * * *

US444 The band 5030-5150 MHz is to be used for the operation of the international standard system (microwave landing system) for precision approach and landing. The requirements of this system shall take precedence over other uses of this band. For the use of this band, US444A and Resolution 114 (Rev.WRC-03) of the ITU Radio Regulations apply.

US444A The band 5091-5150 MHz is also allocated to the fixed-satellite service (Earth-to-space) on a primary basis for non-Federal use. This allocation is limited to feeder links of non-geostationary mobile-satellite systems in the mobile-satellite service and is subject to coordination under No. 9.11A of the ITU Radio Regulations.

In the band 5091-5150 MHz, the following conditions also apply:

– prior to 1 January 2018, the use of the band 5091-5150 MHz by feeder links of non-geostationary-satellite systems in the mobile-satellite service shall be made in accordance with Resolution 114 (Rev.WRC-03) of the ITU Radio Regulations;
– prior to 1 January 2018, the requirements of existing and planned international standard systems for the aeronautical radionavigation service which cannot be met in the 5000-5091 MHz band, shall take precedence over other uses of this band;
– after 1 January 2012, no new assignments shall be made to earth stations providing feeder links of non-geostationary mobile-satellite systems;
– after 1 January 2018, the fixed-satellite service will become secondary to the aeronautical radionavigation service.

US519 The band 18.1-18.3 GHz is also allocated to the meteorological-satellite service (space-to-Earth) on a primary basis. Its use is limited to geostationary satellites and shall be in accordance with the provisions of Article 21, Table 21-4 of the ITU Radio Regulations.

NON-FEDERAL GOVERNMENT (NG) FOOTNOTES

* * * * *

NG5 In the band 535-1705 kHz, AM broadcast licensees and permittees may use their AM carrier on a secondary basis to transmit signals intended for both broadcast and non-broadcast purposes. In the band 88-108 MHz, FM broadcast licensees and permittees are permitted to use subcarriers on a secondary basis to transmit signals intended for both broadcast and non-broadcast purposes. In the bands 54-72, 76-88, 174-216, 470-608, and 614-698 MHz, TV broadcast licensees and permittees are permitted to use subcarriers on a secondary basis for both broadcast and non-broadcast purposes.

* * * * *

NG7 In the bands 2000-2065, 2107-2170, and 2194-2495 kHz, fixed stations associated with the maritime mobile service may be authorized, for purposes of communication with coast stations, to use frequencies assignable to ship stations in these bands on the condition that harmful interference will not be caused to services operating in accordance with the Table of Frequency Allocations. See 47 CFR 80.371(a) for the list of available carrier frequencies.

* * * * *

NG14 TV broadcast stations authorized to operate in the bands 54-72, 76-88, 174-216, 470-608, and 614-698 MHz may use a portion of the television vertical blanking interval for the transmission of telecommunications signals, on the condition that harmful interference will not be caused to the reception of primary services, and that such telecommunications services must accept any interference caused by primary services operating in these bands.

* * * * *

FEDERAL GOVERNMENT (G) FOOTNOTES

* * * * *

G2 In the bands 216.965-216.995 MHz, 420-450 MHz (except as provided for in G129), 890-902 MHz, 928-942 MHz, 1300-1390 MHz, 2310-2390 MHz, 2417-2450 MHz, 2700-2900 MHz, 3300-3500 MHz (except as provided for in US108), 5650-5925 MHz, and 9000-9200 MHz, use of the Federal radiolocation service is restricted to the military services.

* * * * *

G134 In the band 7190-7235 MHz, Federal earth stations operating in the meteorological-satellite service (Earth-to-space) may be authorized subject to the following conditions:

(a) Earth stations are limited to those communicating with the Department of Commerce Geostationary Operational Environmental Satellites (GOES).

(b) There shall not be more than five earth stations authorized at one time.

(c) The GOES satellite receiver shall not claim protection from existing and future stations in the fixed service (ITU Radio Regulation No. 5.43A does not apply).

10. Section 2.201 is amended by revising paragraph (b) to read as follows:

§ 2.201 Emission, modulation, and transmission characteristics.

* * * * *

(b) Three symbols are used to describe the basic characteristics of emissions. Emissions are classified and symbolized according to the following characteristics:

(1) First symbol—type of modulation of the main carrier;

(2) Second symbol—nature of signal(s) modulating the main carrier;

(3) Third symbol—type of information to be transmitted.

NOTE: Two additional symbols for the classification of emissions may be added for a more complete description of an emission. See Appendix 1, Sub-Section IIB of the ITU Radio Regulations for the specifications of these fourth and fifth symbols. Use of these symbols is not required by the Commission.

* * * * *

PART 15 — RADIO FREQUENCY DEVICES

11. The authority citation for part 15 continues to read as follows:

AUTHORITY: 47 U.S.C. 154, 302a, 303, 304, 307, 336, and 544a.

12. Section 15.5 is amended by revising paragraph (a) to read as follows:

§ 15.5 General conditions of operation.

(a) Persons operating intentional or unintentional radiators shall not be deemed to have any vested or recognizable right to continued use of any given frequency by virtue of prior registration or certification of equipment, or, for power line carrier systems, on the basis of prior notification of use pursuant to § 90.35(g) of this chapter.

* * * * *

13. Section 15.113 is amended by revising paragraph (a) to read as follows:

§ 15.113 Power line carrier systems.

* * * * *

(a) A power utility operating a power line carrier system shall submit the details of all existing systems plus any proposed new systems or changes to existing systems to an industry-operated entity as set forth in § 90.35(g) of this chapter. No notification to the FCC is required.

* * * * *

PART 25 — SATELLITE COMMUNICATIONS

14. The authority citation for part 25 continues to read as follows:

AUTHORITY: 47 U.S.C. 701-744. Interprets or applies Sections 4, 301, 302, 303, 307, 309 and 332 of the Communications Act, as amended, 47 U.S.C. Sections 154, 301, 302, 303, 307, 309 and 332, unless otherwise noted.

15. Section 25.202 is amended by revising paragraph (a)(5) to read as follows:

§ 25.202 Frequencies, frequency tolerance and emission limitations.

(a) * * *

* * * * *

(5) The following frequencies are available for use by the inter-satellite service:
22.55-23.00 GHz
23.00-23.55 GHz
24.45-24.65 GHz
24.65-24.75 GHz
54.25-56.90 GHz
57.00-58.20 GHz
65.00-71.00 GHz

* * * * *

PART 73 – RADIO BROADCAST SERVICES

16. The authority citation for Part 73 continues to read as follows:

AUTHORITY: 47 U.S.C. 154, 303, 334 and 336.

17. Section 73.702 is amended by revising paragraphs (f) and (h)(1) and by removing and reserving paragraph (g) to read as follows:

§ 73.702 Assignment and use of frequencies.

* * * * *

(f) Assigned frequencies. To the extent practicable, the frequencies assigned to international broadcast stations shall be within the following frequency bands, which are allocated to the broadcasting service on a primary and exclusive basis, except as noted in paragraph (f)(1)(ii) of this section:

(1) In all Regions:

(i) Exclusive: 5,900-6,200 kHz; 7,300-7,350 kHz; 9,400-9,900 kHz; 11,600-12,100 kHz; 13,570-13,870 kHz; 15,100-15,800 kHz; 17,480-17,900 kHz; 18,900-19,020 kHz; 21,450-21,850 kHz; and 25,670-26,100 kHz.

(ii) Co-primary: 7,350-7,400 kHz, except in the countries listed in 47 CFR 2.106, footnote 5.143C, where this band is also allocated to the fixed service on a primary basis.

(2) In Region 1 and Region 3: 7,200-7,300 kHz and 7,400-7,450 kHz.

NOTE TO (f): For the allocation of frequencies, the ITU has divided the world into three Regions, which are defined in 47 CFR 2.104(b). The bands 7,200-7,300 kHz and 7,400-7,450 kHz are not allocated to the broadcasting service in Region 2. Subject to not causing harmful interference to the broadcasting service, fixed and mobile services may operate in certain of the international broadcasting bands; see 47 CFR 2.106, footnotes 5.136, 5.143, 5.143A, 5.143B, 5.143D, 5.146, 5.147, and 5.151.

(g) [Reserved]

(h) Requirements for Regional operation. (1) Frequency assignments in the bands 7,200-7,300 kHz and 7,400-7,450 kHz shall be restricted to international broadcast stations in the Pacific insular areas that are located in Region 3 (as defined in 47 CFR 2.105(a), note 3) that transmit to geographical zones and areas of reception in Region 1 or Region 3.

* * * * *

PART 90 – PRIVATE LAND MOBILE RADIO SERVICES

18. The authority citation for Part 90 continues to read as follows:

AUTHORITY: Sections 4(i), 11, 303(g), 303(r), and 332(c)(7) of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 161, 303(g), 303(r), 332(c)(7).

19. Section 90.35 is amended by revising paragraph (g) to read as follows:

§ 90.35 Industrial/Business Pool.

* * * * *

(g) The frequencies 9-490 kHz * * *

* * * * *